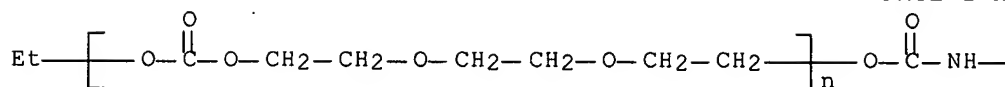
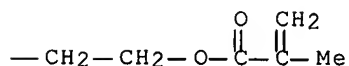


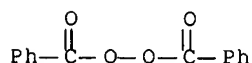
PAGE 1-A



PAGE 1-B



IT 94-36-0, Benzoyl peroxide, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (polymerizable compound and solid polymer
 electrolyte using same for batteries and elec. double
 layer capacitors)
 RN 94-36-0 HCAPLUS
 CN Peroxide, dibenzoyl (CA INDEX NAME)



RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Mitsui Chem Inc	1999			JP 11140176 A	HCAPLUS
Nippon Oil Co Ltd	1996			JP 08295715 A	HCAPLUS
Takeuchi, M	1997			US 5597661 A	

L135 ANSWER 21 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2000:819240 HCAPLUS Full-text

DN 133:351062

TI Covalently and physically crosslinked polymer network
 polyelectrolytes and production method thereof

IN Yamamoto, Toru; Murata, Toshihide

PA Matsushita Electric Industrial Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

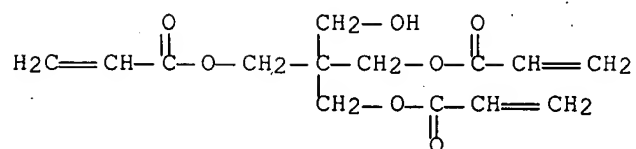
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2000319531	A	20001121	JP 1999-134821	19990514 <--
PRAI JP 1999-134821		19990514	<--	

AB Title polyelectrolytes comprise covalently and phys. crosslinked polymer networks and charge carriers and are useful for nonaq. electrolyte secondary batteries. Thus, a thermosetting resin precursor comprising oligomeric epoxy resin acrylate 50, pentaerythritol triacrylate 8, and benzoyl peroxide 2 part was mixed with 5 parts acrylonitrile-methacrylic acid copolymer (mol ratio 97:3) 15, LiBF₄ 20, ethylene carbonate 100, and propylene carbonate 50 parts and cured at 120° for 60 min between two stainless steel plates to give a

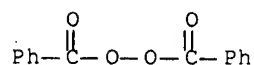
polyelectrolyte giving a lithium battery with good heat resistance and high-rate discharge and capacity retaining characteristics.

- IC ICM C08L0101-16
- ICS C08J0007-00; H01B0001-06; H01M0010-40
- CC 37-6 (Plastics Manufacture and Processing)
- Section cross-reference(s): 52
- ST polyelectrolyte covalently phys crosslinked nonaq secondary battery
- IT Epoxy resins, preparation
 - RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer in formulation); PREP (Preparation); USES (Uses)
 - (acrylates, alicyclic, crosslinked with pentaerythritol triacrylate; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)
- IT Epoxy resins, preparation
 - RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer in formulation); PREP (Preparation); USES (Uses)
 - (crosslinked with pentaerythritol triacrylate; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)
- IT Secondary batteries
 - (lithium; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)
- IT Polyurethanes, preparation
 - RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer in formulation); PREP (Preparation); USES (Uses)
 - (polyester-, acrylic; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)
- IT Polyesters, preparation
 - RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer in formulation); PREP (Preparation); USES (Uses)
 - (polymers with acrylic acid hydroxy derivs. and tolylene diisocyanate; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)
- IT Battery electrolytes
 - Crosslinking catalysts
 - Electrolytes
 - Polyelectrolytes
 - (preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)
- IT Fluoropolymers, uses
 - Polyoxyalkylenes, uses
 - RL: DEV (Device component use); POF (Polymer in formulation); USES (Uses)
 - (preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)
- IT Interpenetrating polymer networks
 - (semi-interpenetrating; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)
- IT Plastics, uses
 - RL: DEV (Device component use); POF (Polymer in formulation); USES (Uses)
 - (thermoplastics; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)
- IT Plastics, uses
 - RL: DEV (Device component use); POF (Polymer in formulation); USES (Uses)
 - (thermosetting; preparation of covalently and phys. crosslinked

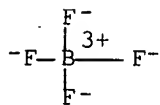
- polymer network polyelectrolytes useful for batteries)
- IT 3524-68-3
 RL: MOA (Modifier or additive use); USES (Uses)
 (crosslinking agent; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)
- IT 94-36-0, Benzoyl peroxide, uses 3849-34-1, Butyl peroxide 24650-42-8
 RL: CAT (Catalyst use); USES (Uses)
 (crosslinking catalyst; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)
- IT 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 90076-65-6 155812-81-0
 RL: DEV (Device component use); USES (Uses)
 (electrolyte; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)
- IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 616-38-6, Dimethyl carbonate
 RL: DEV (Device component use); USES (Uses)
 (polar solvent; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)
- IT 79-10-7DP, Acrylic acid, esters, polymers
 79-41-4DP, Methacrylic acid, esters, polymers
 with pentaerythritol triacrylate 3524-68-3DP, Pentaerythritol triacrylate, polymers with (meth) acrylates 26471-62-5DP, Tolyene diisocyanate, polymers with acrylic acid hydroxy derivs. and polyesters 101465-21-8P 129914-67-6P, Polyethylene glycol diacrylate-trimethylolpropane triacrylate copolymer 305834-74-6P 305834-75-7P
 RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer in formulation); PREP (Preparation); USES (Uses)
 (preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)
- IT 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer 24937-79-9, Poly(vinylidene fluoride) 24980-62-9, Acrylonitrile-vinyl acetate copolymer 25014-41-9, Acrylonitrile homopolymer 25214-69-1, Acrylic acid-acrylonitrile copolymer 25322-68-3 25749-57-9, Acrylonitrile-methacrylic acid copolymer 26778-26-7, Acrylamide-ethylene oxide copolymer
 RL: DEV (Device component use); POF (Polymer in formulation); USES (Uses)
 (preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)
- IT 3524-68-3
 RL: MOA (Modifier or additive use); USES (Uses)
 (crosslinking agent; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)
- RN 3524-68-3 HCAPLUS
- CN 2-Propenoic acid, 1,1'-[2-(hydroxymethyl)-2-[[[(1-oxo-2-propen-1-yl)oxy]methyl]-1,3-propanediyl] ester (CA INDEX NAME)



IT 94-36-0, Benzoyl peroxide, uses
 RL: CAT (Catalyst use); USES (Uses)
 (crosslinking catalyst; preparation of covalently and phys. crosslinked
 polymer network polyelectrolytes useful for
 batteries)
 RN 94-36-0 HCAPLUS
 CN Peroxide, dibenzoyl (CA INDEX NAME)

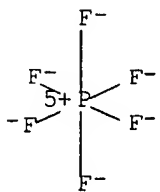


IT 14283-07-9, Lithium tetrafluoroborate 21324-40-3,
 Lithium hexafluorophosphate 90076-65-6 155812-81-0
 RL: DEV (Device component use); USES (Uses)
 (electrolyte; preparation of covalently and phys. crosslinked
 polymer network polyelectrolytes useful for
 batteries)
 RN 14283-07-9 HCAPLUS
 CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



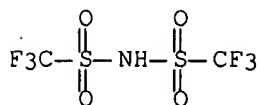
● Li⁺

RN 21324-40-3 HCAPLUS
 CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



● Li⁺

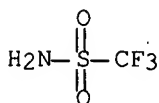
RN 90076-65-6 HCAPLUS

CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-,
lithium salt (1:1) (CA INDEX NAME)

● Li

RN 155812-81-0 HCAPLUS

CN Methanesulfonamide, 1,1,1-trifluoro-, lithium salt (1:1) (CA INDEX NAME)



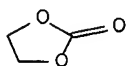
● Li

IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate

RL: DEV (Device component use); USES (Uses)
(polar solvent; preparation of covalently and phys. crosslinked
polymer network polyelectrolytes useful for
batteries)

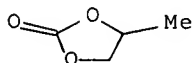
RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 108-32-7 HCAPLUS

CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



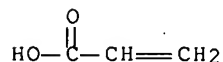
IT 79-10-7DP, Acrylic acid, esters, polymers

79-41-4DP, Methacrylic acid, esters, polymers

with pentaerythritol triacrylate 3524-68-3DP,
Pentaerythritol triacrylate, polymers with (meth)
acrylates 101465-21-8P 129914-67-6P,Polyethylene glycol diacrylate-trimethylolpropane
triacrylate copolymer 305834-74-6P

305834-75-7P

RN 79-10-7 HCAPLUS
CN 2-Propenoic acid (CA INDEX NAME)


$$\text{Me}-\overset{\text{CH}_2}{\underset{\text{||}}{\text{C}}}-\text{CO}_2\text{H}$$
$$\text{H}_2\text{C}=\text{CH}-\overset{\text{O}}{\overset{\parallel}{\text{C}}}-\text{O}-\text{CH}_2-\left\{ \begin{array}{l} \text{CH}_2-\text{OH} \\ \text{CH}_2-\text{O}-\overset{\text{O}}{\overset{\parallel}{\text{C}}}-\text{CH}=\text{CH}_2 \\ \text{CH}_2-\text{O}-\overset{\text{O}}{\overset{\parallel}{\text{C}}}-\text{CH}=\text{CH}_2 \end{array} \right.$$

CM 1

$$\begin{array}{c} \text{H}_2\text{C}=\text{CH}-\overset{\text{O}}{\overset{\parallel}{\text{C}}}-\text{O}-\text{CH}_2-\text{C}-\text{CH}_2-\text{O}-\overset{\text{O}}{\overset{\parallel}{\text{C}}}-\text{CH}=\text{CH}_2 \\ \text{CH}_2-\text{O}-\underset{\text{O}}{\underset{\parallel}{\text{C}}}-\text{CH}=\text{CH}_2 \end{array}$$

CM 2

CRN 107-13-1
CMF C3 H3 .N



Δ

CM 1

$$\text{H}_2\text{C}=\text{CH}-\overset{\text{O}}{\overset{\parallel}{\text{C}}}-\text{O}-\text{CH}_2-\underset{\text{CH}_2-\text{O}-\overset{\text{O}}{\overset{\parallel}{\text{C}}}-\text{CH}=\text{CH}_2}{\overset{\text{CH}_2-\text{OH}}{\text{C}}}-\text{CH}_2-\text{O}-\overset{\text{O}}{\overset{\parallel}{\text{C}}}-\text{CH}=\text{CH}_2$$

CM 2

CRN 3323-53-3
CMF C6 H16 N2 . C6 H10 O4

CM 3

CRN 124-09-4
CMF C6 H16 N2

$$\text{H}_2\text{N}-(\text{CH}_2)_6-\text{NH}_2$$

CM 4

CRN 124-04-9
CMF C6 H10 O4.

$$\text{HO}_2\text{C}-(\text{CH}_2)_4-\text{CO}_2\text{H}$$

IT 25214-69-1, Acrylic acid-acrylonitrile
copolymer 25749-57-9, Acrylonitrile-
methacrylic acid copolymer
RL: DEV (Device component use); POF (Polymer in formulation); USES (Uses)

(preparation of covalently and phys. crosslinked polymer network
polyelectrolytes useful for batteries)

RN 25214-69-1 HCAPLUS

CN 2-Propenoic acid, polymer with 2-propenenitrile (CA INDEX NAME)

CM 1

CRN 107-13-1

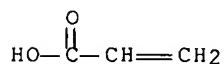
CMF C3 H3 N



CM 2

CRN 79-10-7

CMF C3 H4 O2



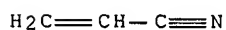
RN 25749-57-9 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with 2-propenenitrile (CA INDEX NAME)

CM 1

CRN 107-13-1

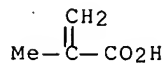
CMF C3 H3 N



CM 2

CRN 79-41-4

CMF C4 H6 O2



L135 ANSWER 22 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2000:686820 HCAPLUS Full-text

DN 133:284087

TI High polymer solid electrolyte, its manufacture and
electrochemical device

PAT-NO: JP02000319531A

DOCUMENT-IDENTIFIER: JP 2000319531 A

TITLE: HIGH MOLECULAR ELECTROLYTE AND ITS PRODUCTION

PUBN-DATE: November 21, 2000

INVENTOR-INFORMATION:

NAME	COUNTRY
YAMAMOTO, TORU	N/A
MURATA, TOSHIHIDE	N/A

ASSIGNEE-INFORMATION:

NAME	COUNTRY
MATSUSHITA ELECTRIC IND CO LTD	N/A

APPL-NO: JP11134821

APPL-DATE: May 14, 1999

INT-CL (IPC): C08L101/16, C08J007/00 , H01B001/06 , H01M010/40

ABSTRACT:

PROBLEM TO BE SOLVED: To obtain a high molecular electrolyte having high molecular skeletons having covalent crosslinks and physical crosslinks and at least a charge carrier and capable of presenting a lithium cell excellent in heat resistance, high rate discharging characteristics and cycle characteristics with little residual stress.

SOLUTION: The objective electrolyte is obtained by constituting the electrolyte with mutually crosslinked high molecular skeletons having at least a high polymer skeleton having covalent bond crosslinks and one having physical crosslinks and a charge carrier, where preferably the high molecular skeletons formed by covalent bonds are mutually physically crosslinked, or a mixture of high molecular skeletons preferably formed of covalent crosslinks (preferably, the high molecular skeleton has at least one species of a vinyl group, an epoxy group, an ether group, an amino group and a urethane group in the main chain) and physical crosslinks (preferably the high molecular skeleton is an acrylonitrile homopolymer, an acrylonitrile-vinyl acetate copolymer or the like).

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(19) 日本国特許庁 (J P)

(12) 公開特許公報 (A)

(11) 特許出願公開番号
特開2000-319531
(P2000-319531A)

(43) 公開日 平成12年11月21日 (2000. 11. 21)

(51) Int.Cl. ⁷	識別記号	F I	テームト* (参考)
C 0 8 L 101/16		C 0 8 L 101/00	4 F 0 7 3
C 0 8 J 7/00	3 0 4	C 0 8 J 7/00	3 0 4 4 J 0 0 2
H 0 1 B 1/06		H 0 1 B 1/06	A 5 G 3 0 1
// H 0 1 M 10/40		H 0 1 M 10/40	B 5 H 0 2 9

審査請求 未請求 請求項の数10 O L (全 8 頁)

(21) 出願番号 特願平11-134821

(22) 出願日 平成11年5月14日 (1999. 5. 14)

(71) 出願人 000005821

松下電器産業株式会社

大阪府門真市大字門真1006番地

(72) 発明者 山本 徹

大阪府門真市大字門真1006番地 松下電器
産業株式会社内

(72) 発明者 村田 年秀

大阪府門真市大字門真1006番地 松下電器
産業株式会社内

(74) 代理人 100072431

弁理士 石井 和郎

最終頁に続く

(54) 【発明の名称】 高分子電解質およびその製造法

(57) 【要約】

【課題】 電池に耐熱性、高率放電特性およびサイクル特性をバランスよく付与するゲル電解質を得ること。

【解決手段】 熱硬化性樹脂および熱可塑性樹脂の混合物からなり、熱硬化性樹脂高分子が架橋し、熱可塑性樹脂高分子同士、および前記熱可塑性樹脂高分子と前記熱硬化性樹脂高分子とが絡み合っている高分子電解質。

【特許請求の範囲】

【請求項1】 共有結合架橋と物理架橋とを有する高分子骨格と、電荷担体とを少なくとも有することを特徴とする高分子電解質。

【請求項2】 共有結合架橋により形成された高分子骨格が、互いに物理架橋してなることを特徴とする請求項1記載の高分子電解質。

【請求項3】 共有結合架橋により形成された高分子骨格と、物理架橋により形成された高分子骨格との混合物であることを特徴とする請求項1記載の高分子電解質。

【請求項4】 共有結合架橋により形成される高分子骨格が、主鎖にビニル基、エポキシ基、エーテル基、アミド基およびウレタン基よりなる群から選択される少なくとも1種を有する請求項1～3のいずれかに記載の高分子電解質。

【請求項5】 物理架橋を形成する高分子骨格が、アクリロニトリルホモポリマー、アクリロニトリル-酢酸ビニル共重合体、アクリロニトリル-アクリル酸共重合体、アクリロニトリル-メタクリル酸共重合体、ポリフッ化ビニリデン、フッ化ビニリデン-ヘキサフルオロプロピレン共重合体、ポリエーテルおよびエチレンオキサイド共重合体よりなる群から選択される少なくとも1種からなる請求項1または2記載の高分子電解質。

【請求項6】 (a) 共有結合架橋を形成する高分子骨格を構成するモノマーおよび/もしくはプレポリマー、架橋剤ならびに重合開始剤に、物理架橋を形成する高分子骨格を構成するポリマー、極性溶媒および電解質塩を添加、混合する工程、および(b) 得られる混合物を加熱および冷却することによって、架橋を有する熱硬化性樹脂を形成し、かつ同時に熱可塑性樹脂高分子同士、および前記熱可塑性樹脂高分子と熱硬化性樹脂高分子との絡み合いを形成する工程を含む熱硬化性樹脂および熱可塑性樹脂の混合物からなる高分子電解質の製造方法。

【請求項7】 前記工程(b)において、前記混合物に紫外線を照射することによって共有結合架橋を有する高分子骨格を形成した後、加熱、冷却することによって物理架橋を有する高分子骨格を形成する請求項5記載の高分子電解質の製造方法。

【請求項8】 前記工程(b)において、物理架橋を有する高分子骨格を形成した後、紫外線照射または加熱によって物理架橋を有する高分子骨格を形成する請求項5記載の高分子電解質の製造方法。

【請求項9】 前記混合物を2枚の平行板間に配置して前記工程(b)を行う請求項5～7のいずれかに記載の高分子電解質の製造方法。

【請求項10】 前記混合物を正極板および負極板に塗布または含浸して前記工程(b)を行い、ついで正極板および負極板を張り合わせる請求項5～7のいずれかに記載の高分子電解質の製造方法。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、非水電解質二次電池の高分子電解質およびその製造方法に関する。

【0002】

【従来の技術】近年、ポータブル機器やコードレス機器の進歩発展に伴い、その電源である電池の長時間駆動を実現させるために、より一層の高エネルギー密度が要求されている。この要求に対して、負極に炭素材料、正極にコバルト酸リチウムを用いたリチウムイオン二次電池や、負極に水素吸蔵合金を用いたニッケル・水素蓄電池が多く使用されている。特に、携帯電話やノート型パソコンに用いる電池には、さらなる軽量化および薄型化が強く要求され、高分子ゲル電解質を用いたポリマー電池が注目を集めている。このポリマー電池における電解質として高分子ゲルのような高分子電解質を用いると、液漏れの心配がなく、金属缶の代わりにアルミニウムをラミネートした樹脂フィルムなどを使用することができ、したがって、従来の金属缶を用いないため軽量化、薄型化が可能となる。また、充電時にリチウムのデンドライトの生成が起りにくく、信頼性の面でも優れている。一方、電極活物質と電解質との界面抵抗が従来のリチウムイオン二次電池に比べて少し高いため、高率放電特性、特に低温における高率放電特性が問題となる。

【0003】前述の、高分子高分子電解質としては、例えば直鎖状のフッ化ビニリデン-ヘキサフルオロプロピレン共重合体を、リチウム塩を溶解したエチレンカーボネートやジメチルカーボネートなどの極性溶媒で膨潤させたものが用いられている(例えば米国特許第5,296,318号または第5,456,000号)。この高分子高分子電解質においては、高分子同士が物理的に絡み合っている。

【0004】しかし、前記分子同士の絡み合い(物理架橋)は、ファンデアワールス力やイオン結合によるものであるため、結合強度が低く、耐熱性において問題がある。さらに、可塑剤の抽出やエージングといった工程が必要であるという問題もある。一方、このような問題を解決するために、分子間を物理的な絡み合いでなく、化学的な共有結合をもって架橋する化学架橋ゲルが検討されている(例えば、特開平5-288213号および特開平5-67476号各公報)。しかし、このような共有結合架橋を有する化学ゲルは、分子同士が絡み合った物理架橋ゲルに比して耐熱性が高く、エージング工程も不要といった利点を有する反面、機械的強度が低く脆いという問題があり、また保液量が少なく、高率特性に劣るという欠点を有している。

【0005】また、共有結合架橋を有する化学ゲルの製造方法としては、ジアクリル酸エステルなどの3次元架橋が可能な高分子を構成する組成(プレポリマー、モノマーおよび重合開始剤)および、リチウム塩を加え極性溶媒溶液中に分散させた後、光もしくは放射線の照射、

または加熱などにより重合反応を開始させ、共有結合架橋を形成する方法が提案されている（例えば、特開平3-207752号公報）。この製造方法では、粘度の低い低分子溶液で扱えるため作業性に優れるが、得られる高分子ゲルの機械的強度が低いと、電極間での短絡を生じやすい。また、硬化時に収縮を生じ、残留応力によってサイクル特性が低下するという問題も有している。そこで、近年、共有結合架橋の内に直鎖状の熱可塑性樹脂を混合した系が考え出され、両者の欠点を補う試みもなされている（例えば、特開平8-225626号公報）。

【0006】

【発明が解決しようとする課題】しかし、単なる複合系では保液性および機械的強度にやや劣り、製造時の短絡、さらにはサイクル特性や高率放電特性の点で問題が残っている。以上のような事実を鑑み、本発明の目的は、保液性および機械的強度が高く、かつ電池に適用した場合に優れた高率放電特性およびサイクル特性を発揮する高分子電解質を得ることにある。

【0007】

【課題を解決するための手段】本発明は、共有結合架橋と物理架橋とを有する高分子骨格と、電荷担体とを少なくとも有することを特徴とする高分子電解質に関する。このとき、共有結合架橋により形成された高分子骨格が、互いに物理架橋してなるのが好ましい。また、共有結合架橋により形成された高分子骨格と、物理架橋により形成された高分子骨格との混合物であるのが好ましい。前記共有結合架橋により形成される高分子骨格は、主鎖にビニル基、エポキシ基、エーテル基、アミド基およびウレタン基よりなる群から選択される少なくとも1種を有するのが好ましい。前記物理架橋を形成する高分子骨格は、アクリロニトリルホモポリマー、アクリロニトリル-酢酸ビニル共重合体、アクリロニトリル-アクリル酸共重合体、アクリロニトリル-メタクリル酸共重合体、ポリフッ化ビニリデン、フッ化ビニリデン-ヘキサフルオロプロピレン共重合体、ポリエーテルおよびエチレンオキシド共重合体よりなる群から選択される少なくとも1種からなるのが好ましい。

【0008】さらに、本発明は、(a) 共有結合架橋を形成する高分子骨格を構成するモノマーおよび/もしくはプレポリマー、架橋剤ならびに重合開始剤に、物理架橋を形成する高分子骨格を構成するポリマー、極性溶媒および電解質塩を添加、混合する工程、および(b) 得られる混合物を加熱および冷却することによって、架橋を有する熱硬化性樹脂を形成し、かつ同時に熱可塑性樹脂高分子同士、および前記熱可塑性樹脂高分子と熱硬化性樹脂高分子との絡み合いを形成する工程を含む熱硬化性樹脂および熱可塑性樹脂の混合物からなる高分子電解質の製造方法にも関する。

【0009】前記工程(b)においては、前記混合物に

紫外線を照射することによって共有結合架橋を有する高分子骨格を形成した後、加熱、冷却することによって物理架橋を有する高分子骨格を形成するのが好ましい。前記工程(b)においては、物理架橋を有する高分子骨格を形成した後、紫外線照射または加熱によって物理架橋を有する高分子骨格を形成するのが好ましい。この場合、前記混合物を2枚の平行板間に配置して前記工程(b)を行ってもよい。また、前記混合物を正極板および負極板に塗布または含浸して前記工程(b)を行い、

【0010】

【発明の実施の形態】本発明者らは、上述の課題を解決するために鋭意検討した結果、熱硬化性樹脂および熱可塑性樹脂の混合物からなり、熱硬化性樹脂高分子が共有結合架橋し、その間をぬって熱可塑性樹脂同士が絡み合っている物理架橋を形成することにより、共有結合架橋を有する高分子単独からなる高分子電解質、および分子間の絡み合い(物理架橋)を有する高分子単独からなる高分子電解質の欠点を補うことができることを見出した。

【0011】本発明の高分子電解質を構成する分子内共有結合架橋を有する熱硬化性樹脂としては、一般的な熱硬化性樹脂であれば特に制限はない。このような熱硬化性樹脂としては、主鎖にアクリロニトリル基、アクリレート基、メタクリレート基、エポキシ基、エーテル基、アミド基およびウレタン基よりなる群から選択される少なくとも1種の結合基を有するものが挙げられる。すなわち、フェノール樹脂、ユリア樹脂、メラミン樹脂、不飽和ポリエステル樹脂、アルキド樹脂、エポキシ樹脂、ポリエーテル樹脂、ケイ素樹脂、ウレタン樹脂などが挙げられる。なかでも、イオン伝導度が高く、保液性の高さという点から、エーテル基を有するポリエチレンオキシド樹脂であるのが好ましい。

【0012】一方、分子間で絡み合う高分子としては、一般的な熱可塑性樹脂であれば特に制限はないが、イオン伝導度および保液性の高さ、さらには難燃性という点から、アクリロニトリルホモポリマー、アクリロニトリル-酢酸ビニル共重合体、アクリロニトリル-アクリル酸共重合体、アクリロニトリル-メタクリル酸共重合体、ポリフッ化ビニリデン、フッ化ビニリデン-ヘキサフルオロプロピレン共重合体、ポリエーテルおよびエチレンオキシド共重合体よりなる群から選択される少なくとも1種であるのが好ましい。なかでも、イオン伝導度および難燃性という点から、アクリロニトリル系ポリマーであるのが好ましい。

【0013】また、本発明の高分子電解質は、前述の熱硬化性樹脂および熱可塑性樹脂の混合物からなるが、非収縮性、保液性および機械的強度という点から、前記混合物の10~80重量%が熱硬化性樹脂であるのが好ま

しい。さらには、40～70重量%が熱硬化性樹脂であるのが好ましい。

【0014】このようにして得られたゲル電解質を、コーン・プレート型粘弾性測定装置を用いて各周波数における複素弾性率($E^*(\omega)$)を測定し、 $\log \omega$ に対する弾性率の実数部($\log E'(\omega)$)をプロットしたところ、ゴム状領域において2段のプラトーが認められた。そのプラトーの高さから1つ目のプラトーは熱可塑性樹脂の物理架橋によるもの、2つ目のプラトーは熱硬化性樹脂の共有結合架橋によるものと考えられる。

【0015】つぎに、本発明は、(a)共有結合架橋を形成する高分子骨格を構成するモノマーおよび/もしくはプレポリマー、架橋剤ならびに重合開始剤に、物理架橋を形成する高分子骨格を構成するポリマー、極性溶媒および電解質塩を添加、混合する工程、および(b)得られる混合物を好ましくは90℃以上で加熱および0℃以下で冷却することによって、架橋を有する熱硬化性樹脂を形成し、かつ同時に熱可塑性樹脂高分子同士、および前記熱可塑性樹脂高分子と熱硬化性樹脂高分子との絡み合いを形成する工程を含む熱硬化性樹脂および熱可塑性樹脂の混合物からなる高分子電解質の製造方法にも関する。

【0016】まず、工程(a)においては、熱硬化性樹脂を構成するモノマーおよび/もしくはプレポリマー、架橋剤ならびに重合開始剤に、熱可塑性樹脂、極性溶媒および電解質塩を添加、混合する。熱硬化性樹脂を構成するモノマーおよびプレポリマーとしては、所望する高分子電解質を構成する熱硬化性樹脂の種類に応じて適宜選択すればよい。

【0017】熱硬化性樹脂としてポリアクリロニトリルを用いる場合は、例えばアクリロニトリルプレポリマー(繰返し単位20～50程度)などを用いればよい。熱硬化性樹脂としてポリエーテルを用いる場合は、例えばエチレンオキシドやプロピレンオキシドのプレポリマーなどを用いればよい。熱硬化性樹脂としてエポキシ樹脂を用いる場合は、例えばエピクロヒドリンとビスフェノールAなどを用いればよい。

【0018】また、架橋剤としても、所望する高分子電解質を構成する熱硬化性樹脂の種類に応じて適宜選択すればよいが、例えばペンタエリスリトールトリアクリレート、トリメチロールプロパントリアクリレートなどがあげられる。重合開始剤としては、加熱によって架橋を有する熱硬化性樹脂を得る場合は、例えば過酸化ベンゾイルなどが挙げられる。また、紫外線照射によって架橋を有する熱硬化性樹脂を得る場合は、例えばベンジルジメチルケタールなどが挙げられる。

【0019】つぎに、熱可塑性樹脂としては、前述の熱可塑性樹脂を用いればよく、極性溶媒としては、例えばエチレンカーボネート(EC)、プロピレンカーボネート(PC)、ジメチルカーボネート(DMC)、ジメチ

ルホルムアミド(DMF)、N-メチルホルムアミド(NMF)などが挙げられる。分子量は30万(Nw)以上が好ましい。また、電解質塩としては、イオン伝導性に優れている LiBF_4 、 LiPF_6 、 LiClO_4 、 LiCF_3SO_3 、 LiAsF_6 、 $\text{LiN}(\text{SO}_2\text{CF}_3)_2$ などのLi塩などが挙げられる。これらの成分の添加、混合は、常法により行えばよい。

【0020】つぎに、前記工程(b)においては、工程(a)において得られる混合物に紫外線を照射することによって架橋を有する熱硬化性樹脂高分子を形成した後、加熱、冷却することによって熱可塑性樹脂高分子同士の物理的な絡み合いを形成する。このとき、前記工程(b)において、加熱、冷却することによって熱可塑性樹脂同士の絡み合いを形成した後、紫外線照射によって架橋を有する熱硬化性樹脂高分子を形成する方法も有効である。すなわち、前記混合物を加熱、冷却することによって共有結合架橋と物理架橋を同時に形成してもよく、また、物理架橋の前後で紫外線照射によって共有結合架橋を形成してもよい。

【0021】さらに、前記混合物をポリオレフィンやポリエチレンテレフタレートなどの離型性に優れたフィルム上に塗布して前記工程(b)を行ってもよく、前記混合物を正極板および負極板に塗布または含浸して前記工程(b)を行い、ついで正極板および負極板を張り合わせてもよい。

【0022】

【実施例】以下、実施例を用いて本発明を具体的に説明するが、本発明はこれらのみに限定されるものではない。

《実施例1》

(1)高分子電解質の作製

両端にアクリロイル基を有し、中央に脂環型樹脂(主鎖を構成するアルキル基の炭素数は約50)を有するオリゴマーエポキシアクリレート50重量部に、架橋剤としてペンタエリスリトールトリアクリレート(PETA)8重量部、および重合開始剤として過酸化ベンゾイル2重量部を添加し、充分に混合して、熱硬化樹脂の前駆体を作製した。この前駆体に、熱可塑性樹脂として分子量30万のアクリロニトリル-メタクリル酸(AN-MA)共重合体(共重合モル比97:3)15重量部、極性溶媒としてエチレンカーボネート(EC)100重量部、プロピレンカーボネート(PC)50重量部、および電解質塩として LiBF_4 を20重量部添加し、充分に混合した後、50℃において真空脱泡した。このようにして調製したゾル状溶液を乾燥雰囲気下で厚さ30 μm の2枚のステンレス鋼板間に配し、120℃で60分間加熱し、前記前駆体を熱重合をさせるとともにAN-MA共重合体を融解させた。ついで、-20℃の雰囲気中に1日間放置して、分子間の絡み合いを形成させた。このようにして本発明の高分子電解質(14mm×24

mm)を作製した。

【0023】(2)電池の作製

つぎに、正極活物質としての LiCoO_2 、導電材としての黒鉛粉末、および結着剤としてのポリテトラフルオロエチレン(PTFE)、希釈剤としてのジメチルホルムアミド(DMF)を、重量比100:5:7:80の割合で混合し、アルミニウム箔集電体の両面に塗布し、プレス、熱処理して、正極(10mm×20mm)を作製した。一方、負極活物質の高結晶性炭素、結着剤のPTFEおよび希釈剤としてのDMFを重量比100:4:80の割合でよく混合し、銅箔上に塗布し、乾燥熱ロールプレスし、負極(12mm×22mm)を作製した。上記の正極にAlのリード線、負極に銅のリード線をそれぞれ接続した後、EC、PCおよび LiBF_4 とを重量比10:5:2の割合で混合して調製した電解液を正負極に真空含浸させた。つぎに、1枚の正極の両側に上記のゲルおよび負極を各々張り合わせ、アルミニウムをラミネートした樹脂フィルム製袋内に挿入し、真空シールして密閉し、容量が正極で規制された電池を作製した。

〔評価〕さらにこの電池の両面をアクリル樹脂板で軽く押さえた状態で充放電試験を行った。なお、これらの作業はいずれもドライルームの中で行った。0.2C、4.2Vの定電流、定電圧で8時間充電し、0.2Cで、3.0Vカットの条件で放電した。100サイクル後の容量維持率は92%であり、85℃で3日間放置後の電池の外観変化も全く観察されなかった。通常の熱可塑性樹脂からなる分子間の絡み合いのみを有するゲルでは、溶解を起こした。また、放電電流を1Cにした充放電試験(充電電流は1/5C)の場合、容量は放電電流0.2Cのときの93%と優れたレート特性を示した。なお、結果は合わせて表1に示す。

【0024】《実施例2》

(1)高分子電解質の作製

両端にアクリル酸基を有し、中央にエチレンオキシサイド基が直鎖状に約100個並んだオリゴマー20重量部に、架橋剤としてトリメチロールプロパントリアクリレート(TMPTA)8重量部、および重合開始剤としてベンジルジメチルケタール2重量部を添加し、充分に混合して、熱硬化性樹脂の前駆体を作製した。この前駆体に、分子量50万のアクリロニトリル-酢酸ビニル(AN-VAc)共重合体(共重合モル比95:5)50重量部、極性溶媒のエチレンカーボネート(EC)140重量部、プロピレンカーボネート(PC)60重量部、および電解質塩として LiPF_6 を30重量部添加し、充分に混合した後、50℃で真空脱泡した。こうして調製したゾル状溶液を乾燥雰囲気下でポリエチレンテレフタート製フィルム(厚さ約30μm)上に塗布した後、Arガス中で紫外線を照射し、まず共有結合架橋を形成した。つぎに、このフィルムを90℃に加熱し、A

N-VAc共重合体が融解してから30分間保持し、その後-20℃の雰囲気中に1日間放置して分子間の絡み合い(物理架橋)を形成させた。こうして、本発明の高分子電解質(14mm×24mm)を作製した。

【0025】(2)電池の作製

つぎに、実施例1と同様の電解液(EC/PC/LiPF₆=4/2/1)を含浸した1枚の正極と2枚の負極との間に上記の高分子電解質を転写し、挟み込んでセルを作製し、アルミニウムをラミネートした樹脂フィルム10の袋内に挿入し、真空シールして密閉し、電池を作製した。

〔評価〕この電池の充放電特性を実施例1と同様にして測定した。100サイクル後の容量維持率は95%であり、85℃で3日間放置後の電池の外観変化も全く観察されなかった。また、1C放電においても0.2C放電時の容量の94%を有し、優れたレート特性を示した。一方、通常分子間の絡み合い(物理架橋)のみを有する高分子電解質では、ゲルが溶解し、電池が変形して短絡を起こした。なお、結果は合わせて表1に示す。

20 【0026】《実施例3》実施例2と同様のオリゴマーとして両端にアクリル酸基を有し、中央にエチレンオキシサイド基が直鎖状に約100個並んだもの7重量部に、架橋剤としてTMPTA2重量部、および重合開始剤としてベンジルジメチルケタールを1重量部添加し、充分に混合して、熱硬化性樹脂の前駆体を作製した。つぎに、分子量50万のAN-VAc共重合体(共重合モル比93:7)90重量部に、極性溶媒としてEC140重量部およびジメチルカーボネート(DMC)80重量部、電解質塩として $\text{LiN}(\text{SO}_2\text{CF}_3)_2$ を30重量部30 加え、これらを前記前駆体と充分に混合した後、50℃で真空脱泡した。こうして調製したゾル状溶液を乾燥雰囲気下でポリプロピレン製フィルム上に塗布した後、先に130℃に加熱して、AN-VAc共重合体を融解し、約5分間保持した後、0℃の雰囲気下で1日間冷却して、分子間に絡み合い(物理架橋)を有するゲル部分を作製した。つぎに、Arガス雰囲気下で上方から紫外線を照射して共有結合架橋を形成し、本発明の高分子電解質(膜厚30μm)を作製した。この高分子電解質を用いて、実施例2と同様にして電池を作製した。

40 【評価】前記電池の充放電特性を測定した。100サイクル後の容量維持率は91%であり、85℃で3日間放置後の電池の外観変化も全く観察されなかった。また、1C放電時の容量は、0.2C放電時の容量の94%を有し、優れたレート特性を示した。なお、結果は、合わせて表1に示す。

【0027】《実施例4》実施例1で調製した高分子電解質を作製するためのゾル状溶液に、実施例1と同様の正極および負極を浸漬し、真空中で電極内にゲル形成材を含浸させた。つぎに、電極を取り出し、120℃まで50 温度を上げ60分間保持した。その後、-20℃の雰囲気

気により1昼夜保持することで電極内部(特に表面付近)に、共有結合架橋と分子間の絡み合い(物理架橋)の両者が混在した高分子電解質を作製した。この際、電極表面には膜厚15 μ m程度のゲルの薄膜層が形成されていた。このようにして作製した正極1枚と負極2枚を張り合わせることで電極間に電解質(膜厚30 μ m)を有する電池を構成した。

〔評価〕この電池の充放電特性を実施例1と同様にして測定した。100サイクル後の容量維持率は94%であり、85℃で3日間放置後の電池の外観変化も全く観察されなかった。また、1C放電時の容量は、0.2C放電時の容量の90%を有し、優れたレート特性を示した。なお、結果を合わせて表1に示す。

【0028】《実施例5》実施例2で調製した高分子電解質を作製するためのゾル状溶液を、実施例1と同様の正極および負極の表面に塗布した。つぎに、電極の前記塗布面に紫外線を照射した後、電極を140℃まで一旦5分間温度を上げ、ついで、-20℃の雰囲気中に1昼夜保持することにより、電極表面付近に共有結合架橋と物理架橋の両者が混在した高分子電解質を作製した。この際、電極表面には膜厚15 μ m程度のゲルの薄膜層が形成されていた。なお、負極は一方面に、また正極は両面に高分子電解質層を形成した。このようにして高分子電解質層を形成した正極1枚と負極2枚を張り合わせて電極間に電解質を有する電池を構成した。

〔評価〕この電池の充放電特性を実施例1と同様にして測定した。100サイクル後の容量維持率は93%であり、85℃で3日間放置後の電池の外観変化も全く観察されなかった。また、1C放電時の容量は、0.2C放電時の容量の91%を有し、優れたレート特性を示した。結果を合わせて表1に示す。

【0029】《実施例6》実施例2で調製した高分子電解質を作製するためのゾル状溶液を、実施例1と同様の正極および負極の表面に塗布した。つぎに、電極を140℃まで一旦温度を上げて5分間保持し、ついで、-20℃の雰囲気中に1昼夜保持し物理架橋を形成した。その後、電極の前記塗布面にArガス雰囲気下で紫外線を照射して共有結合架橋を形成した。こうして、電極表面付近において分子間に絡み合いを有する熱可塑性樹脂と分

子内に架橋を有する熱硬化性樹脂の両者が混在した高分子電解質層を作製した。この際、電極表面には膜厚15 μ m程度のゲルの薄膜層が形成された。なお、負極は一方面に、また正極は両面に高分子電解質層を形成した。このようにして作製した正極1枚と負極2枚を張り合わせて電極間に高分子電解質を有する電池を構成した。

〔評価〕この電池の充放電特性を実施例1と同様にして測定した。100サイクル後の容量維持率は91%であり、85℃で3日間放置後の電池の外観変化も全く観察されなかった。また、1C放電時の容量は、0.2C放電時の容量の91%を有し、優れたレート特性を示した。結果を合わせて表1に示す。

【0030】《実施例7～13》高分子電解質を構成する成分を表1に示すものに変えた他は実施例1と同様の製造方法によって電池を作製し、特性を評価した。ゲルを構成する極性溶媒および電解質塩は同一組成のもの(ECを120重量部、PCを60重量部、およびLiCF₃SO₃を20重量部)を用いた。いずれの材料を用いた電池も耐熱性、サイクル特性、および高率放電特性に優れることがわかった。

【0031】《比較例1》AN-MA共重合体の物理架橋のみが形成される高分子電解質を用いた他は実施例3と同様にして電池を作製し、電池特性を評価した。その結果、サイクル性およびレート特性は優れていたが、耐熱性の点で不都合があった。すなわち、85℃で3日間保持したところ短絡を起こした。

【0032】《比較例2》分子内に共有結合架橋を有する熱硬化性樹脂のみからなる高分子電解質を用いて実施例1と同様にして電池を作製し、電池特性を評価した。その結果、耐熱性の点では優れていたが、サイクル特性およびレート特性の点で実施例のものに比べて劣っていた。また、電池作製時におけるクラック発生が多く、不良率が高くなるという問題もあった。また、熱硬化樹脂と熱可塑性樹脂を混合させ、共有結合架橋のみを有するゲルにおいては、耐熱性と機械的強度の面では改善されるが、電解液保持率が低く、イオン伝導度が低くなるという欠点を有している。

【0033】

【表1】

11

12

	ゲル電解質の組成		評価結果		
	熱硬化性樹脂の組成 (重量部)	熱可塑性樹脂の組成 (重量部)	耐熱性	高率放電特性	容量維持率(%)
実施例	1 脂環式エポキシアクリレート/50、PETA/8、過酸化ベンゾイル/2	AN-MA共重合体/15	変形なし ショートなし	93	92
	2 エチレンオキシド・アクリレート/20、TMPTA/8、ベンジルジメチルケタール/2	AN-VAc共重合体/50	変形なし ショートなし	94	95
	3 エチレンオキシド・アクリレート/7、TMPTA/2、ベンジルジメチルケタール/1	AN-VAc共重合体/90	変形なし ショートなし	94	91
	4 脂環式エポキシアクリレート/50、PETA/8、過酸化ベンゾイル/2	AN-MA共重合体/15	変形なし ショートなし	90	94
	5 エチレンオキシド・アクリレート/20、TMPTA/8、ベンジルジメチルケタール/2	AN-VAc共重合体/50	変形なし ショートなし	91	93
	6 エチレンオキシド・アクリレート/20、TMPTA/8、ベンジルジメチルケタール/2	AN-VAc共重合体/50	変形なし ショートなし	91	91
	7 アクリロニトリル/20、PETA/5、過酸化ベンゾイル/2	AN-アクリル酸共重合体/60	変形なし ショートなし	92	92
	8 アクリレート/30、PETA/4、過酸化ベンゾイル/2	PANホモポリマー/80	変形なし ショートなし	92	91
	9 メタクリレート/40、PETA/4、過酸化ベンゾイル/2	PVDF-HFP共重合体/50	変形なし ショートなし	91	92
比較例	10 ビスフェノールA型エポキシ/40、PETA/5、過酸化ベンゾイル/2	PVDF/60	変形なし ショートなし	90	93
	1 エチレンオキシド/50、PETA/5、過酸化ベンゾイル/3	エチレンオキシド-アクリルアミド共重合体/70	変形なし ショートなし	94	90
	1 ヘキサメチレンモノウムアジベート/30、PETA/5、過酸化ベンゾイル/2	ポリエチレンオキシド/80	変形なし ショートなし	93	91
	1 トリレンジイソシアネート/30、ポリエステル/50、ヒドロキシアクリレート/20、過酸化ブチル/2	PVDF-HFP共重合体/50	変形なし ショートなし	92	90
	1 -	AN-VAc共重合体/100	変形あり ショートあり	91	94
比較例	2 脂環式エポキシアクリレート/65、PETA/8、過酸化ベンゾイル/2	-	変形なし ショートなし	89	82

【0034】以上のように共有結合架橋と分子間の絡み合いからなる物理架橋を有する熱可塑性樹脂の両者が混在するゲルを用いることで耐熱性、サイクル特性、高率放電特性に優れた電池となることがわかった。この際、前述のように、熱硬化性樹脂の重量比率が全高分子量に対して10～80重量%であることが望ましい。極性溶媒としてはジメチルホルムアミド(DMF)、N-メチルホルムアミド(NMF)、ジプロピレンカーボネート(DPC)なども、さらに電解質塩としてLiClO₄、LiAsF₆も有効であった。また、本発明の高分子電解質において、熱可塑性樹脂が*

*ら構成されるゲル部分は、高温で絡み合い点が解けて溶融状態となり、熱硬化性樹脂から構成されるゲル部分で耐熱性が保持されているものと考えられる。

【0035】

【発明の効果】本発明によれば、共有結合架橋と物理架橋を有する熱可塑性樹脂の両者が混在した高分子電解質とすることにより、耐熱性および高率放電特性に優れ、機械強度も高く、さらに残留応力が少なくサイクル特性にも優れたリチウム電池が得られる。すなわち、本発明の高分子電解質は、耐熱性、高率放電特性およびサイクル特性をバランスよく満足するものである。

フロントページの続き

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1745

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Class	Subclass	Date	Examiner
429	300, 189, 303, 317, 307,	9/26/2006	LSW
Updated Search 2-28-07 LSW			
Updated Search 8-6-07 LSW			

INTERFERENCE SEARCHED

Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)

	DATE	EXMR
Searched East. Did an inventor search. Looked over search 8-31-06 and search 9-25-06.	9/26/2006	LSW
Looked over Search 2-6-07	2-28-07	LSW
Looked over Search 8-6-07	8-6-07	LSW
P816, 137, 59, 69 74, 106, 117, 135 189, 183, 185		

13007

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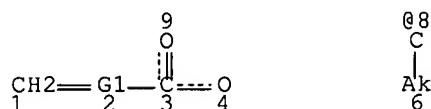
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 L79 54 S L77,L78
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 L98 4 S L97 AND E1-E8
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 L100 21 S L99 NOT 59/SC
 L101 37 S L95,L98,L100
 L102 27 S L84 NOT L90-L101
 L103 31 S L101 AND L62
 L104 6 S L101 NOT L103
 L105 1 S L104 AND L1-L16
 L106 32 S L103,L105
 L107 5 S L104 NOT L106
 L108 1 S L107 AND 128:35554/DN
 L109 33 S L103,L105,L108
 L110 11 S L92 NOT L109
 L111 1 S L110 AND 138:323915/DN
 L112 34 S L109,L111
 L113 27 S L102 NOT L112
 L114 3 S L113 AND BATTER?/TI
 L115 4 S L113 AND CELL?/TI
 L116 7 S L114,L115
 L117 20 S L113 NOT L116
 SEL AN 5 17 19
 L118 3 S L117 AND E9-E14
 L119 37 S L112,L118
 L120 37 S L119 AND L1-L16,L35-L58,L73-L84,L90-L119
 L121 33 S L120 AND L62
 L122 28 S L120 AND ?ACRYL?
 L123 35 S L121,L122
 L124 2 S L120 NOT L123
 L125 1 S L124 AND (?CR1CH2OCOO? OR ?CR2CH2O? OR NCOOCH2CR3?)
 L126 36 S L123,L125

SEL HIT RN

FILE 'REGISTRY' ENTERED AT 09:27:24 ON 30 JUL 2007

L127 274 S E15-E288
 L128 124 S L127 AND L34
 L129 49 S L128 AND 1/NC
 L130 75 S L128 NOT L129
 L131 2 S L130 AND (K OR LI)/ELS AND 2/NC
 L132 1 S L130 AND "C4H6O2.X(C2H4O)NH2O"/MF
 L133 52 S L129,L131,L132

FILE 'HCAPLUS' ENTERED AT 09:30:27 ON 30 JUL 2007

L134 26 S L133 AND L126
 L135 27 S L125,L134

FILE 'REGISTRY' ENTERED AT 09:31:47 ON 30 JUL 2007

=> fil hcaplus

FILE 'HCAPLUS' ENTERED AT 09:32:36 ON 30 JUL 2007

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L135 ANSWER 1 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2005:466390 HCAPLUS Full-text

DN 142:484864

TI Manufacture of secondary polymer lithium battery

IN Tang, Zhiyuan; Wang, Zhanliang

PA Tianjin University, Peop. Rep. China

SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 7 pp.

CODEN: CNXXEV

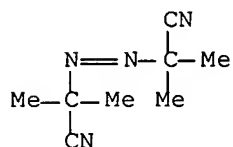
DT Patent

LA Chinese

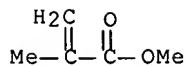
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	---	-----	-----	-----
PI	CN 1426126	A	20030625	CN 2003-100743	20030123 <--
PRAI	CN 2003-100743		20030123	<--	

- AB The battery is manufactured by dissolving Me methacrylate, acrylonitrile and lithium methacrylate dissolving in a 1st solvent; placing the mixture in a container and adding an initiator; sealing the container after removing O and reacting at 50-70° for 8-12 h to obtain a 1st polymer; mixing the 1st polymer with a 2nd polymer (polyvinylidene fluoride; or vinylidene fluoride-hexafluoropropylene copolymer) in a 2nd solvent to form a slurry, applying the slurry on a cathode and/or an anode; drying at 30-50° to form a film; assembling the electrodes in a battery case; and injecting an electrolyte solution in to th case followed by sealing.
- IC ICM H01M0010-40
ICS H01M0010-38
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- ST polymer lithium secondary battery manuf
- IT Fluoropolymers, uses
RL: DEV (Device component use); USES (Uses)
(manufacture secondary polymer lithium batteries)
- IT 78-67-1, Azobisisobutyronitrile
RL: CAT (Catalyst use); USES (Uses)
(manufacture secondary polymer lithium batteries)
- IT 80-62-6, Methyl methacrylate 107-13-1, Acrylonitrile, processes 13234-23-6, Lithium methacrylate
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(manufacture secondary polymer lithium batteries)
- IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 7791-03-9, Lithium perchlorate 9011-17-0, Vinylidene fluoride-hexafluoropropylene copolymer 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 24937-79-9, Polyvinylidene fluoride 29763-27-7, Acrylonitrile-methacrylic acid-methyl methacrylate copolymer 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium trifluoromethane sulfonate 90076-65-6
RL: DEV (Device component use); USES (Uses)
(manufacture secondary polymer lithium batteries)
- IT 78-67-1, Azobisisobutyronitrile
RL: CAT (Catalyst use); USES (Uses)
(manufacture secondary polymer lithium batteries)
- RN 78-67-1 HCAPLUS
- CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)

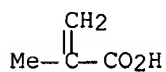


- IT 80-62-6, Methyl methacrylate 13234-23-6, Lithium methacrylate
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(manufacture secondary polymer lithium batteries)
- RN 80-62-6 HCAPLUS
- CN 2-Propenoic acid, 2-methyl-, methyl ester (CA INDEX NAME)



RN 13234-23-6 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, lithium salt (1:1) (CA INDEX NAME)

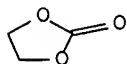


● Li

IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 7791-03-9, Lithium perchlorate 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 29763-27-7, Acrylonitrile-methacrylic acid-methyl methacrylate copolymer 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium trifluoromethane sulfonate 90076-65-6
 RL: DEV (Device component use); USES (Uses)
 (manufacture secondary polymer lithium batteries)

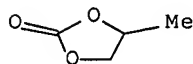
RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



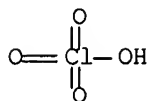
RN 108-32-7 HCAPLUS

CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



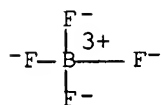
RN 7791-03-9 HCAPLUS

CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)



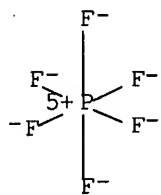
● Li

RN 14283-07-9 HCAPLUS
 CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



● Li⁺

RN 21324-40-3 HCAPLUS
 CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



● Li⁺

RN 29763-27-7 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, polymer with methyl 2-methyl-2-propenoate and 2-propenenitrile (CA INDEX NAME)

CM 1

CRN 107-13-1

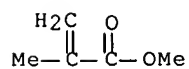
CMF C3 H3 N



CM 2

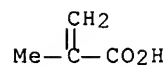
CRN 80-62-6

CMF C5 H8 O2

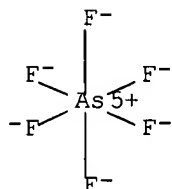


CM 3

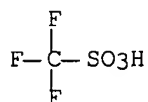
CRN 79-41-4
CMF C4 H6 O2



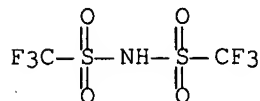
RN 29935-35-1 HCAPLUS
CN Arsenate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



RN 33454-82-9 HCAPLUS
CN Methanesulfonic acid, 1,1,1-trifluoro-, lithium salt (1:1) (CA INDEX NAME)



RN 90076-65-6 HCAPLUS
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



L135 ANSWER 2 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2004:1026264 HCAPLUS Full-text
DN 142:23764
TI Ion-conducting thermally convertible polymeric material and polymerized

compound for its production

IN Mokrousov, G. M.; Izaak, T. I.; Gavrilenko, N. A.

PA Tomskii Gosudarstvennyi Universitet, Russia

SO Russ., No pp. given

CODEN: RUXXE7

DT Patent

LA Russian

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	RU 2241282	C2	20041127	RU 2000-129845	20001128 <--
PRAI	RU 2000-129845		20001128	<--	

AB Ion-conducting thermally convertible **polymeric material** and **polymerized compound** for its production as solid-state ion conductors or **polymeric electrolytes** are described. The proposed compound for producing ion-conducting thermally convertible polymeric materials has in its composition alkyl and/or allyl ester of **methacrylic acid** that functions as monomer that incorporated in alkyl radical 1 - 16 atoms of carbon and one or more salts of s-, p-, d-, and f-metals of halide-substituted low aliphatic carbonic acid having 1 - 4 atoms of carbon and/or ammonium trifluoroacetate in alkyl radical with low carbonic acids incorporating 1 - 6 atoms of carbon in alkyl radical added or not to them, remaining chelate-forming organic compds. that incorporate heteroatom of nitrogen, or sulfur being added or not to them. In addition it has salts of s- and/or p-metal of alkyl and/or alkenyl-**acrylic acid**, and/or organic component composed of one or more low-mol. substances each incorporating in its composition at least two functional groups of OH, NHx, CS, COOH, CO and/or polar **solvents** capable of dissolving both mentioned salts of halide-substituted low aliphatic carbonic acid and mentioned salts of alkyl and/or alkenyl-**acrylic acid**, proportion of components being as follows: 1 10⁻⁴ - 2 mol/l of monomeric mixture of mentioned salts of halide-substituted low aliphatic carbonic acid; 0.01 - 0.1 mol fractions of salt of s- and/or p-metal of alkyl and/or alkenyl- **acrylic acid**, or 0.1 - 0.55 mol fractions of mentioned organic components, or mixture thereof; and the rest of monomer of mentioned composition In addition description is given of ion-conducting thermally convertible polymeric material produced from polymeric compound and ion-conducting polymeric film produced from thermally convertible polymeric material. Transparent ion-conducting material produced in the process has elec. conductivity as high as 10⁻⁴ to 10⁻⁵S/cm at room temperature with desired characteristics of material being retained.EFFECT: enhanced elec. conductivity of material, that is enhanced conductivity and stability of gel-electrolyte produced in the process.

IC ICM H01M0006-16

ICS H01M0006-18; H01M0010-40; C08L0033-10;
C08J0005-18

CC 36-5 (Physical Properties of Synthetic High Polymers)

Section cross-reference(s): 52, 76

ST thermally convertible **polymeric material** ion conducting solid **electrolyte**

IT Ionic conductors

Polymer electrolytes

Solid electrolytes

(ion-conducting thermally convertible **polymeric material**)

IT 57-13-6, Urea, processes 60-00-4, EDTA, processes 67-68-5,

DMSO, processes 68-12-2, Dimethylformamide, processes

75-05-8, Acetonitrile, processes 75-12-7, Formamide, processes

79-41-4, Methacrylic acid, processes 80-62-6,

Methylmethacrylate 107-21-1, Ethylene glycol, processes

108-32-7, Propylene carbonate 123-39-7, N-Methylformamide

124-04-9, Adipic acid, processes 124-09-4, Hexamethylenediamine,

processes 144-62-7, Oxalic acid, processes 2923-16-2, Potassium

trifluoroacetate 2923-17-3, Lithium trifluoroacetate
3336-58-1, Ammonium trifluoroacetate 6900-35-2, Potassium
methacrylate 9004-57-3, Ethylcellulose 21907-47-1, Zinc
trifluoroacetate 25322-68-3, Polyethylene glycol

RL: CPS (Chemical process); PEP (Physical, engineering or chemical
process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(ion-conducting thermally convertible polymeric material comprising)

IT 94-36-0, Benzoyl peroxide, processes

RL: CPS (Chemical process); PEP (Physical, engineering or chemical
process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(polymerization initiator; use in preparation of ion-conducting thermally
convertible polymeric material)

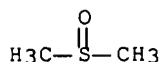
IT 67-68-5, DMSO, processes 68-12-2, Dimethylformamide,
processes 75-05-8, Acetonitrile, processes 79-41-4,
Methacrylic acid, processes 80-62-6,

Methylmethacrylate 108-32-7, Propylene carbonate
2923-17-3, Lithium trifluoroacetate 6900-35-2, Potassium
methacrylate

RL: CPS (Chemical process); PEP (Physical, engineering or chemical
process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(ion-conducting thermally convertible polymeric material comprising)

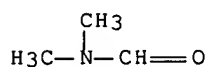
RN 67-68-5 HCAPLUS

CN Methane, 1,1'-sulfinylbis- (CA INDEX NAME)



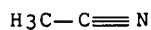
RN 68-12-2 HCAPLUS

CN Formamide, N,N-dimethyl- (CA INDEX NAME)



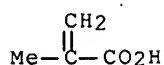
RN 75-05-8 HCAPLUS

CN Acetonitrile (CA INDEX NAME)



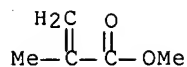
RN 79-41-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl- (CA INDEX NAME)



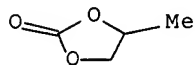
RN 80-62-6 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, methyl ester (CA INDEX NAME)



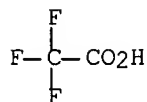
RN 108-32-7 HCAPLUS

CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



RN 2923-17-3 HCAPLUS

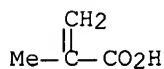
CN Acetic acid, 2,2,2-trifluoro-, lithium salt (1:1) (CA INDEX NAME)



● Li

RN 6900-35-2 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, potassium salt (1:1) (CA INDEX NAME)



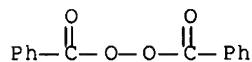
● K

IT 94-36-0, Benzoyl peroxide, processes

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(polymerization initiator; use in preparation of ion-conducting thermally convertible polymeric material)

RN 94-36-0 HCAPLUS

CN Peroxide, dibenzoyl (CA INDEX NAME)



L135 ANSWER 3 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2004:896521 HCAPLUS Full-text

DN 142:117581

TI Organic electrolyte and lithium secondary battery using the same

IN Kim, Cheon Su; Noh, Hwan Jin
 PA Samsung SDI Co., Ltd., S. Korea
 SO Repub. Korean Kongkae Taeho Kongbo, No pp. given
 CODEN: KRXXA7
 DT Patent
 LA Korean
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	KR 2001095830	A	20011107	KR 2000-19248	20000412 <--
PRAI	KR 2000-19248		20000412	<--	

AB Provided are an organic electrolyte containing monomers for forming polymers to trap a mixed organic solvent and lithium salts, which does not volatilize at a high temperature, and a lithium secondary battery using the organic electrolyte. The organic electrolyte comprises the mixed organic solvent, the lithium salts, 1-20 weight% (based on the total weight of the organic electrolyte) of the monomers polymerized at 40-150 °C for forming the polymers to trap the mixed organic solvent and the lithium salts, and 0.01-2 weight% (based on the total weight of the organic electrolyte) of a polymerization initiator selected from the group consisting of benzoyl peroxide, acetyl peroxide, lauroyl peroxide, and azobis isobutyronitrile, wherein the monomer is acrylonitrile, Me acrylate, methacrylate, Me methacrylate, and a mixture thereof. The lithium secondary battery comprises a cathode containing lithium-containing metal oxides, an anode containing metal lithium, lithium alloy, or carbon material, a separator laid between the cathode and the anode, and the organic electrolyte.

IC ICM H01M0010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST acrylic polymd gel polymer
 electrolyte lithium secondary battery solvent

IT Gels

(gel polymer electrolytes; organic electrolyte and lithium secondary battery using same)

IT Polymer electrolytes

(gel; organic electrolyte and lithium secondary battery using same)

IT Battery electrolytes

(gels; organic electrolyte and lithium secondary battery using same)

IT Secondary batteries

(lithium; organic electrolyte and lithium secondary battery using same)

IT Polymerization

(organic electrolyte and lithium secondary battery using same)

IT Acrylic polymers, uses

RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (organic electrolyte and lithium secondary battery using same)

IT Solvents

(organic, in electrolyte; organic electrolyte and lithium secondary battery using same)

IT Alkali metal oxides

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(other metal-containing, in cathode; organic electrolyte and lithium secondary battery using same)

IT 7439-93-2D, Lithium, alloys
 RL: DEV (Device component use); USES (Uses)
 (anode; organic electrolyte and lithium secondary **battery** using same)

IT 7439-93-2, Lithium, uses
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (anode; organic electrolyte and lithium secondary **battery** using same)

IT 7440-44-0, Carbon, uses
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (in anode; organic electrolyte and lithium secondary **battery** using same)

IT 7439-93-2D, Lithium, salts
 RL: DEV (Device component use); USES (Uses)
 (in electrolyte; organic electrolyte and lithium secondary **battery** using same)

IT 79-41-4, Methacrylic acid, uses 80-62-6, Methyl methacrylate 96-33-3, Methyl acrylate 107-13-1, Acrylonitrile, uses
 RL: DEV (Device component use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
 (organic electrolyte and lithium secondary **battery** using same)

IT 78-67-1, AIBN 94-36-0, Benzoyl peroxide, uses 105-74-8, Lauroyl peroxide 110-22-5, Acetyl peroxide
 RL: CAT (Catalyst use); DEV (Device component use); USES (Uses)
 (polymerization initiator; organic electrolyte and lithium secondary **battery** using same)

IT 7439-93-2D, Lithium, alloys
 RL: DEV (Device component use); USES (Uses)
 (anode; organic electrolyte and lithium secondary **battery** using same)

RN 7439-93-2 HCAPLUS
 CN Lithium (CA INDEX NAME)

Li

IT 7439-93-2, Lithium, uses
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (anode; organic electrolyte and lithium secondary **battery** using same)

RN 7439-93-2 HCAPLUS
 CN Lithium (CA INDEX NAME)

Li

IT 7440-44-0, Carbon, uses
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (in anode; organic electrolyte and lithium secondary **battery** using same)

RN 7440-44-0 HCAPLUS

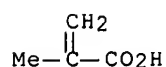
CN Carbon (CA INDEX NAME)

C

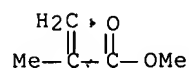
IT 7439-93-2D, Lithium, salts
 RL: DEV (Device component use); USES (Uses)
 (in electrolyte; organic electrolyte and lithium secondary battery
 using same)
 RN 7439-93-2 HCAPLUS
 CN Lithium (CA INDEX NAME)

Li

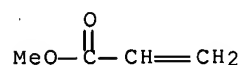
IT 79-41-4, Methacrylic acid, uses 80-62-6,
 Methyl methacrylate 96-33-3, Methyl acrylate
 RL: DEV (Device component use); RCT (Reactant); RACT (Reactant or
 reagent); USES (Uses)
 (organic electrolyte and lithium secondary battery using same)
 RN 79-41-4 HCAPLUS
 CN 2-Propenoic acid, 2-methyl- (CA INDEX NAME)



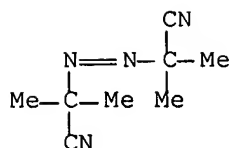
RN 80-62-6 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, methyl ester (CA INDEX NAME)



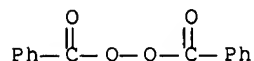
RN 96-33-3 HCAPLUS
 CN 2-Propenoic acid, methyl ester (CA INDEX NAME)



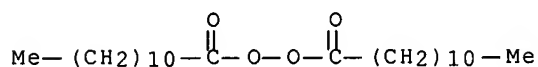
IT 78-67-1, AIBN 94-36-0, Benzoyl peroxide, uses
 105-74-8, Lauroyl peroxide
 RL: CAT (Catalyst use); DEV (Device component use); USES (Uses)
 (polymerization initiator; organic electrolyte and lithium
 secondary battery using same)
 RN 78-67-1 HCAPLUS
 CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)]



RN 94-36-0 HCAPLUS
 CN Peroxide, dibenzoyl (CA INDEX NAME)



RN 105-74-8 HCAPLUS
 CN Peroxide, bis(1-oxododecyl) (CA INDEX NAME)



L135 ANSWER 4 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN
 AN 2004:252055 HCAPLUS Full-text
 DN 140:256340
 TI Anodes for lithium battery
 IN Kim, Yong-tae; Choi, Su-suk; Choi, Yun-suk; Lee, Kyoung-hee
 PA Samsung Sdi Co., Ltd., S. Korea
 SO U.S. Pat. Appl. Publ., 10 pp.
 CODEN: USXXCO
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2004058232	A1	20040325	US 2003-664157	20030917 <--
	KR 2004026208	A	20040330	KR 2002-57577	20020923 <--
	JP 2004119372	A	20040415	JP 2003-308015	20030829 <--
	CN 1492523	A	20040428	CN 2003-158726	20030922 <--
PRAI	KR 2002-57577	A	20020923	<--	

AB A lithium neg. electrode for a lithium battery has good cycle life and capacity characteristics. The lithium neg. electrode comprises a lithium metal layer and a protective layer present on the lithium metal layer, where the protective layer includes an organosulfur compound. An organosulfur compound having a thiol terminal group is preferred since such a compound can form a complex with lithium metal to enable coating to be carried out easily. The organosulfur compound has a large number of S or N elements having high electronegativity to form a complex with lithium ions, so it renders lithium ions to be deposited relatively evenly on the lithium metal surface, reducing dendrite formation.

IC ICM H01M0002-16
 ICS H01M0004-66; H01M0004-40
 INCL 429137000; 429246000; 429245000; 429212000; 429231950

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 38

ST anode lithium battery

IT Chalcogenides
 Oxides (inorganic), uses
 RL: DEV (Device component use); USES (Uses)
 (Li-containing; anodes for lithium battery)

IT Peroxides, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (acyl; anodes for lithium battery)

IT Hydroperoxides
 RL: MOA (Modifier or additive use); USES (Uses)
 (alkyl, tertiary; anodes for lithium battery)

IT Peroxides, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (alkyl; anodes for lithium battery)

IT Battery anodes
 Coating materials
 Conducting polymers
 (anodes for lithium battery)

IT Acrylic polymers, uses
 Polyanilines
 Polyoxyalkylenes, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (anodes for lithium battery)

IT Amino acids, uses
 Halogens
 Lewis acids
 Rare earth chlorides
 Sulfonic acids, uses
 Transition metal compounds
 RL: MOA (Modifier or additive use); USES (Uses)
 (dopant; anodes for lithium battery)

IT Primary batteries
 Secondary batteries
 (lithium; anodes for lithium battery)

IT Esters, uses
 Ketals
 RL: MOA (Modifier or additive use); USES (Uses)
 (peroxy; anodes for lithium battery)

IT Crown ethers
 Polybenzimidazoles
 Polyquinolines
 Polyquinoxalines
 RL: MOA (Modifier or additive use); USES (Uses)
 (thiophenes, polymers; anodes for lithium battery)

IT 110-71-4 111-96-6, Diglyme 126-33-0, Sulfolane
 646-06-0, 1,3-Dioxolane 7439-93-2, Lithium, uses
 7704-34-9, Sulfur, uses
 RL: DEV (Device component use); USES (Uses)
 (anodes for lithium battery)

IT 67-63-0, Isopropyl alcohol, uses 75-91-2, tert-Butyl
 hydroperoxide 78-63-7, 2,5-Dimethyl-2,5-di-(tert-
 butylperoxy)hexane 78-67-1, Azobisisobutyronitrile
 80-15-9, Cumene hydroperoxide 80-43-3, Dicumyl peroxide
 94-36-0, Dibenzoyl peroxide, uses 105-74-8, Dilauroyl
 peroxide 110-05-4, Di-tert-butyl peroxide 123-23-9, Succinic
 acid peroxide 762-12-9, Didecanoyl peroxide 927-07-1,
 tert-Butylperoxypivalate 2167-23-9,

2,2-Di-(tert-butylperoxy)butane 3025-88-5, 2,5-Dihydroperoxy-2,5-dimethylhexane 4511-39-1, tert-Amylperoxybenzoate 15667-10-4, 1,1-Di-(tert-amylperoxy)cyclohexane 16066-38-9, Di(n-propyl)peroxy dicarbonate 16111-62-9, Di(2-ethylhexyl)peroxy dicarbonate 19910-65-7, Di(sec-butyl)peroxy dicarbonate 24937-05-1, Poly(ethyleneadipate) 24938-43-0, Poly(β -propiolactone) 24969-06-0, Polyepichlorohydrin 25190-62-9, Poly(p-phenylene) 25233-30-1, Polyaniline 25233-30-1D, Polyaniline, sulfonated 25233-34-5, Polythiophene 25233-34-5D, Polythiophene, derivs. 25322-68-3, Peo 25322-69-4, Polypropylene oxide 25667-11-2, Poly(ethylenesuccinate) 25721-76-0, Polyethylene glycol dimethacrylate 25852-49-7, Polypropylene glycol dimethacrylate 26570-48-9, Poly(ethylene glycol diacrylate) 26748-47-0, α -Cumylperoxyneodecanoate 34099-48-4, Peroxydicarbonate 52496-08-9, Poly(propyleneglycoldiacrylate) 55794-20-2, Ethyl 3,3-di-(tert-butylperoxy)butyrate 95732-35-7 97332-10-0, Poly(N-propylaziridine) 139096-57-4, Isoquinoline homopolymer 172973-34-1

RL: MOA (Modifier or additive use); USES (Uses)

(anodes for lithium battery)

IT 865-44-1, Iodine trichloride 1493-13-6, Triflic acid 7446-11-9, Sulfur trioxide, uses 7550-45-0, Titanium chloride (TiCl₄) (T-4)-, uses 7553-56-2, Iodine, uses 7601-90-3, Perchloric acid, uses 7637-07-2, uses 7647-01-0, Hydrochloric acid, uses 7647-19-0, Phosphorus pentafluoride 7664-39-3, Hydrofluoric acid, uses 7664-93-9, Sulfuric acid, uses 7697-37-2, Nitric acid, uses 7705-08-0, Ferric chloride, uses 7721-01-9, Tantalum chloride (TaCl₅) 7726-95-6, Bromine, uses 7782-44-7, Oxygen, uses 7782-50-5, Chlorine, uses 7783-68-8, Niobium fluoride nbf₅ 7783-70-2, Antimony pentafluoride 7783-81-5 7783-82-6 7783-93-9, Silver perchlorate 7784-36-3, Arsenic pentafluoride 7789-21-1, Fluorosulfonic acid 7789-33-5, Iodine monobromide 7790-94-5, Chlorosulfonic acid 7790-99-0, Iodine monochloride 10026-11-6 10026-12-7, Niobium chloride (NbCl₅) 10277-43-7, Lanthanum nitrate hexahydrate 10294-33-4, Boron tribromide 10294-34-5 13283-01-7 13499-05-3 13709-32-5, Bis(fluorosulfonyl)peroxide 13774-85-1 13819-84-6, Molybdenum fluoride mof₅ 13870-10-5, Iron chloride oxide feocl 13873-84-2, Iodine monofluoride 14635-75-7, Nitrosyl tetrafluoroborate 14797-73-0, Perchlorate 14874-70-5, Tetrafluoroborate 16871-80-0, Nitrosyl hexachloroantimonate 16887-00-6, Chloride, uses 16919-18-9, Hexafluorophosphate 16941-92-7, Hexachloroiridic acid 16973-45-8, Hexafluoroarsenate 17111-95-4 17856-92-7 20461-54-5, Iodide, uses 24959-67-9, Bromide, uses 25321-43-1, Octylbenzenesulfonic acid 27176-87-0, Dodecylbenzene sulfonic acid

RL: MOA (Modifier or additive use); USES (Uses)

(dopant; anodes for lithium battery)

IT 540-63-6, 1,2-Ethanedithiol 1072-71-5, 2,5-Dimercapto-1,3,4-thiadiazole 2001-93-6, 2,4-Dimercaptopyrimidine 2150-02-9, Bis(2-mercaptoethyl)ether 3570-55-6, Bis(2-mercaptoethyl)sulfide 9002-98-6 9002-98-6D, derivs. 37306-44-8D, Triazole, mercapto derivs 131538-50-6 135886-78-1 135886-79-2

RL: TEM (Technical or engineered material use); USES (Uses)

(protective coating; anodes for lithium battery)

IT 7704-34-9D, Sulfur, organosulfur compound

RL: TEM (Technical or engineered material use); USES (Uses)

(protective layer; anodes for lithium battery)

IT 273-77-8, 1,2,3-Benzothiadiazole 612-79-3, 6,6'-Biquinoline 25013-01-8, Polypyridine 25013-01-8D, Polypyridine, derivs.

26856-35-9, Dihydrophenanthrene 27986-50-1, Poly(1,3-cyclohexadiene)
 30604-81-0, Polypyrrole 30604-81-0D, Polypyrrole, derivs. 51937-67-8,
 Polyferrocene 71730-08-0, Polyanthraquinone 136902-52-8,
 2,2'-Bipyridine homopolymer 136902-52-8D, 2,2'-Bipyridine homopolymer,
 derivs. 190201-51-5, Pyrimidine homopolymer 190201-57-1,
 1,5-Naphthyridine homopolymer

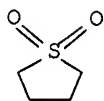
RL: MOA (Modifier or additive use); USES (Uses)
 (thiophenes, polymers; anodes for lithium battery)

IT 126-33-0, Sulfolane 646-06-0, 1,3-Dioxolane
 7439-93-2, Lithium, uses 7704-34-9, Sulfur, uses

RL: DEV (Device component use); USES (Uses)
 (anodes for lithium battery)

RN 126-33-0 HCAPLUS

CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



RN 646-06-0 HCAPLUS

CN 1,3-Dioxolane (CA INDEX NAME)



RN 7439-93-2 HCAPLUS

CN Lithium (CA INDEX NAME)

Li

RN 7704-34-9 HCAPLUS

CN Sulfur (CA INDEX NAME)

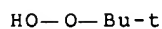
S

IT 75-91-2, tert-Butyl hydroperoxide 78-63-7,
 2,5-Dimethyl-2,5-di-(tert-butylperoxy)hexane 78-67-1,
 Azobisisobutyronitrile 80-15-9, Cumene hydroperoxide
 80-43-3, Dicumyl peroxide 94-36-0, Dibenzoyl peroxide,
 uses 105-74-8, Dilauroyl peroxide 110-05-4,
 Di-tert-butyl peroxide 2167-23-9, 2,2-Di-(tert-
 butylperoxy)butane 3025-88-5, 2,5-Dihydroperoxy-2,5-
 dimethylhexane 16066-38-9, Di(n-propyl)peroxy dicarbonate
 16111-62-9, Di(2-ethylhexyl)peroxy dicarbonate 19910-65-7
 , Di(sec-butyl)peroxy dicarbonate 25233-34-5, Polythiophene
 25233-34-5D, Polythiophene, derivs. 25721-76-0,
 Polyethylene glycol dimethacrylate 25852-49-7,

Polypropylene glycol dimethacrylate 26570-48-9,
 Poly(ethylene glycol diacrylate) 26748-47-0,
 α -Cumylperoxyneodecanoate 52496-08-9, Poly(
 propyleneglycoldiacrylate) 55794-20-2, Ethyl
 3,3-di-(tert-butylperoxy)butyrate 95732-35-7
 RL: MOA (Modifier or additive use); USES (Uses)
 (anodes for lithium battery)

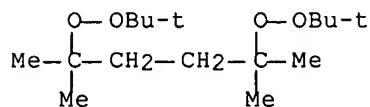
RN 75-91-2 HCAPLUS

CN Hydroperoxide, 1,1-dimethylethyl (CA INDEX NAME)



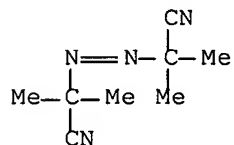
RN 78-63-7 HCAPLUS

CN Peroxide, 1,1'-(1,1,4,4-tetramethyl-1,4-butanediyl)bis[2-(1,1-dimethylethyl) (CA INDEX NAME)



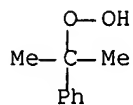
RN 78-67-1 HCAPLUS

CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)



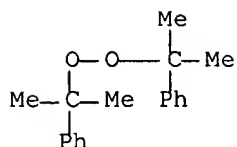
RN 80-15-9 HCAPLUS

CN Hydroperoxide, 1-methyl-1-phenylethyl (CA INDEX NAME)

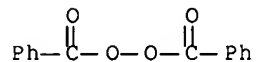


RN 80-43-3 HCAPLUS

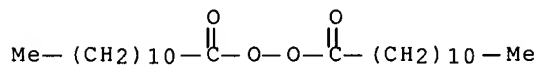
CN Peroxide, bis(1-methyl-1-phenylethyl) (CA INDEX NAME)



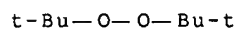
RN 94-36-0 HCAPLUS
 CN Peroxide, dibenzoyl (CA INDEX NAME)



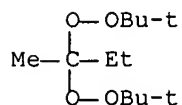
RN 105-74-8 HCAPLUS
 CN Peroxide, bis(1-oxododecyl) (CA INDEX NAME)



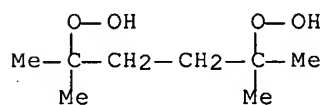
RN 110-05-4 HCAPLUS
 CN Peroxide, bis(1,1-dimethylethyl) (CA INDEX NAME)



RN 2167-23-9 HCAPLUS
 CN Peroxide, 1,1'-(1-methylpropylidene)bis[2-(1,1-dimethylethyl) (CA INDEX NAME)]

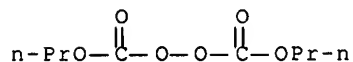


RN 3025-88-5 HCAPLUS
 CN Hydroperoxide, 1,1'-(1,1,4,4-tetramethyl-1,4-butanediyl)bis- (CA INDEX NAME)



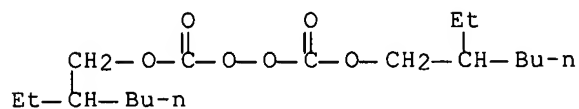
RN 16066-38-9 HCAPLUS

CN Peroxydicarbonic acid, C,C'-dipropyl ester (CA INDEX NAME)



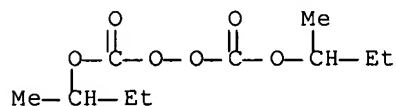
RN 16111-62-9 HCAPLUS

CN Peroxydicarbonic acid, C,C'-bis(2-ethylhexyl) ester (CA INDEX NAME)



RN 19910-65-7 HCAPLUS

CN Peroxydicarbonic acid, C,C'-bis(1-methylpropyl) ester (CA INDEX NAME)



RN 25233-34-5 HCAPLUS

CN Thiophene, homopolymer (CA INDEX NAME)

CM 1

CRN 110-02-1

CMF C4 H4 S



RN 25233-34-5 HCAPLUS

CN Thiophene, homopolymer (CA INDEX NAME)

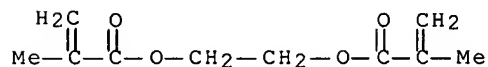
CM 1

CRN 110-02-1

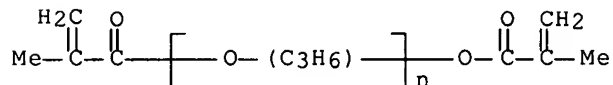
CMF C4 H4 S



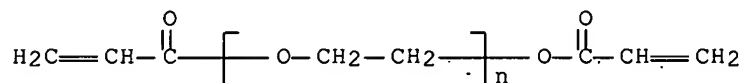
RN 25721-76-0 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, 1,1'-(1,2-ethanediyl) ester, homopolymer (CA INDEX NAME)
 CM 1
 CRN 97-90-5
 CMF C10 H14 O4



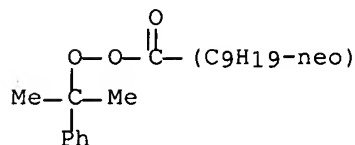
RN 25852-49-7 HCAPLUS
 CN Poly[oxy(methyl-1,2-ethanediyl)], α -(2-methyl-1-oxo-2-propen-1-yl)- ω -[(2-methyl-1-oxo-2-propen-1-yl)oxy]- (CA INDEX NAME)



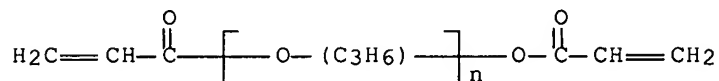
RN 26570-48-9 HCAPLUS
 CN Poly(oxy-1,2-ethanediyl), α -(1-oxo-2-propen-1-yl)- ω -[(1-oxo-2-propen-1-yl)oxy]- (CA INDEX NAME)



RN 26748-47-0 HCAPLUS
 CN Neodecaneperoxoic acid, 1-methyl-1-phenylethyl ester (CA INDEX NAME)

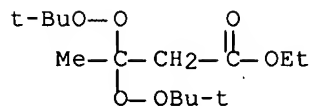


RN 52496-08-9 HCAPLUS
 CN Poly[oxy(methyl-1,2-ethanediyl)], α -(1-oxo-2-propen-1-yl)- ω -[(1-oxo-2-propen-1-yl)oxy]- (CA INDEX NAME)



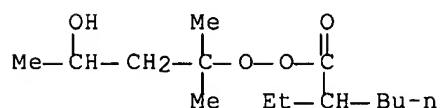
RN 55794-20-2 HCAPLUS

CN Butanoic acid, 3,3-bis[(1,1-dimethylethyl)dioxy]-, ethyl ester (CA INDEX NAME)



RN 95732-35-7 HCAPLUS

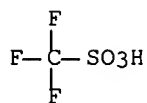
CN Hexaneperoxoic acid, 2-ethyl-, 3-hydroxy-1,1-dimethylbutyl ester (CA INDEX NAME)



IT 1493-13-6, Triflic acid 7446-11-9, Sulfur trioxide, uses 7664-93-9, Sulfuric acid, uses 7789-21-1, Fluorosulfonic acid 7790-94-5, Chlorosulfonic acid 13709-32-5, Bis(fluorosulfonyl)peroxide 25321-43-1, Octylbenzenesulfonic acid 27176-87-0, Dodecylbenzene sulfonic acid
 RL: MOA (Modifier or additive use); USES (Uses)
 (dopant; anodes for lithium battery)

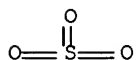
RN 1493-13-6 HCAPLUS

CN Methanesulfonic acid, 1,1,1-trifluoro- (CA INDEX NAME)



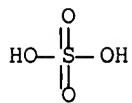
RN 7446-11-9 HCAPLUS

CN Sulfur trioxide (CA INDEX NAME)

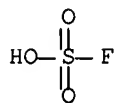


RN 7664-93-9 HCAPLUS

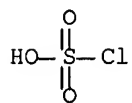
CN Sulfuric acid (CA INDEX NAME)



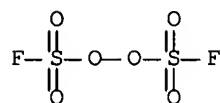
RN 7789-21-1 HCAPLUS
CN Fluorosulfuric acid (CA INDEX NAME)



RN 7790-94-5 HCAPLUS
CN Chlorosulfuric acid (CA INDEX NAME)



RN 13709-32-5 HCAPLUS
CN Peroxydisulfuryl fluoride (6CI, 8CI, 9CI) (CA INDEX NAME)



RN 25321-43-1 HCAPLUS
CN Benzenesulfonic acid, octyl- (CA INDEX NAME)



D1-SO₃H

Me-(CH₂)₇-D1

RN 27176-87-0 HCAPLUS
CN Benzenesulfonic acid, dodecyl- (CA INDEX NAME)



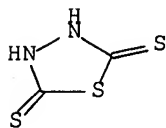
D1—SO₃H

Me—(CH₂)₁₁—D1

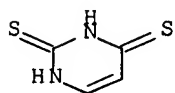
IT 540-63-6, 1,2-Ethanedithiol 1072-71-5,
2,5-Dimercapto-1,3,4-thiadiazole 2001-93-6, 2,4-
Dimercaptopyrimidine 2150-02-9, Bis(2-mercaptoethyl)ether
3570-55-6, Bis(2-mercaptoethyl)sulfide 131538-50-6
135886-78-1 135886-79-2
RL: TEM (Technical or engineered material use); USES (Uses)
(protective coating; anodes for lithium battery)
RN 540-63-6 HCAPLUS
CN 1,2-Ethanedithiol (CA INDEX NAME)

HS—CH₂—CH₂—SH

RN 1072-71-5 HCAPLUS
CN 1,3,4-Thiadiazolidine-2,5-dithione (CA INDEX NAME)



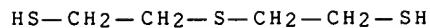
RN 2001-93-6 HCAPLUS
CN 2,4(1H,3H)-Pyrimidinedithione (CA INDEX NAME)



RN 2150-02-9 HCAPLUS
CN Ethanethiol, 2,2'-oxybis- (CA INDEX NAME)

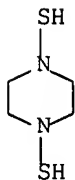
HS—CH₂—CH₂—O—CH₂—CH₂—SH

RN 3570-55-6 HCAPLUS
CN Ethanethiol, 2,2'-thiobis- (CA INDEX NAME)



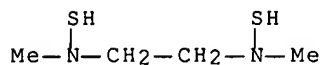
RN 131538-50-6 HCAPLUS

CN Piperazine, 1,4-dimercapto- (9CI) (CA INDEX NAME)



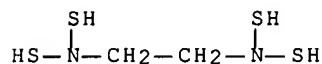
RN 135886-78-1 HCAPLUS

CN 1,2-Ethanediamine, N,N'-dimercapto-N,N'-dimethyl- (9CI) (CA INDEX NAME)



RN 135886-79-2 HCAPLUS

CN 1,2-Ethanediamine, N,N,N',N'-tetramercapto- (9CI) (CA INDEX NAME)



IT 7704-34-9D, Sulfur, organosulfur compound

RL: TEM (Technical or engineered material use); USES (Uses)
(protective layer; anodes for lithium **battery**)

RN 7704-34-9 HCAPLUS

CN Sulfur (CA INDEX NAME)

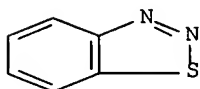
S

IT 273-77-8, 1,2,3-Benzothiadiazole

RL: MOA (Modifier or additive use); USES (Uses)
(thiophenes, polymers; anodes for lithium **battery**)

RN 273-77-8 HCAPLUS

CN 1,2,3-Benzothiadiazole (CA INDEX NAME)



L135 ANSWER 5 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2004:203431 HCAPLUS Full-text

DN 140:238483

TI Electrolyte for a lithium battery

IN Park, Yong-Chul; Jung, Won-Ii; Kim, Geun-Bae; Cho, Jae-Phil; Jung, Cheol-Soo

PA S. Korea

SO U.S. Pat. Appl. Publ., 13 pp.

CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	US 2004048163	A1	20040311	US 2003-656086	20030905 <--
	KR 2004022054	A	20040311	KR 2002-53879	20020906 <--
	JP 2004103573	A	20040402	JP 2003-282119	20030729 <--
	CN 1495961	A	20040512	CN 2003-164853	20030906 <--
PRAI	KR 2002-53879	A	20020906	<--	

OS MARPAT 140:238483

AB An electrolyte for a lithium battery includes a nonaq. organic solvent, a lithium salt, and an additive comprising (a) a sulfone-based compound and (b) a C3-30 organic peroxide or azo-compound. The electrolyte may further include a poly(ester)(meth) acrylate or a polymer that is derived from a (polyester)polyol with at least three hydroxyl (-OH) groups, where a portion or all of the hydroxyl groups are substituted with a (meth) acrylic ester and the remaining hydroxyl groups that are not substituted with the (meth)acrylic ester are substituted with a group having no radical reactivity. The lithium battery comprising the electrolyte of the present invention has a significantly improved charge-discharge and cycle life characteristics, recovery capacity ratio at high temperature, and swelling inhibition properties.

IC ICM H01M0010-40

INCL 429326000; 429329000; 429339000; 429340000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 38

ST lithium battery electrolyte

IT Battery electrolytes

(electrolyte for lithium battery)

IT Aromatic hydrocarbons, uses

Carbonates, uses

Esters, uses

Ethers, uses

Ketones, uses

RL: DEV (Device component use); USES (Uses)

(electrolyte for lithium battery)

IT Azo compounds

RL: MOA (Modifier or additive use); USES (Uses)

(electrolyte for lithium battery)

IT Carbonaceous materials (technological products)

RL: MOA (Modifier or additive use); USES (Uses)

(electrolyte for lithium battery)

IT Sulfones

RL: MOA (Modifier or additive use); USES (Uses)

(electrolyte for lithium battery)

IT Polyesters, uses

RL: DEV (Device component use); USES (Uses)

- (hydroxy-terminated; electrolyte for lithium battery)
- IT Secondary batteries
(lithium; electrolyte for lithium battery)
- IT Polyesters, uses
RL: DEV (Device component use); USES (Uses)
(methacrylate; electrolyte for lithium battery)
- IT Peroxides, uses
RL: MOA (Modifier or additive use); USES (Uses)
(organic, C3-30; electrolyte for lithium battery)
- IT Esters, uses
RL: DEV (Device component use); USES (Uses)
(poly-; electrolyte for lithium battery)
- IT Imides
Sulfonic acids, uses
RL: DEV (Device component use); USES (Uses)
(sulfonimides, perfluoro derivs., lithium salts; electrolyte for lithium battery)
- IT 56-81-5, Glycerol, uses 71-43-2, Benzene, uses 96-49-1, Ethylene carbonate 98-95-3, Nitrobenzene, uses 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 108-88-3, Toluene, uses 108-90-7, Chlorobenzene, uses 149-32-6, Erythritol 462-06-6, Fluorobenzene 616-38-6, Dimethyl carbonate 623-53-0, Methyl ethyl carbonate 623-96-1, Dipropyl carbonate 1330-20-7, Xylene, uses 4437-85-8, Butylene carbonate 7790-99-0, Iodine chloride (ICl) 7791-03-9, Lithium perchlorate 10377-51-2, Lithium iodide (LiI) 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 27359-10-0, Trifluorotoluene 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 35363-40-7, Ethyl propyl carbonate, uses 39300-70-4, Lithium nickel oxide 56525-42-9, Methyl propyl carbonate, uses 90076-65-6 131651-65-5, Lithium nonafluorobutanesulfonate 162684-16-4, Lithium manganese nickel oxide 193215-00-8, Cobalt lithiummanganese nickel oxide $\text{Co}_0.1\text{LiMn}_0.2\text{Ni}_0.7\text{O}_2$
RL: DEV (Device component use); USES (Uses)
(electrolyte for lithium battery)
- IT 67-71-0, Methyl sulfone 77-77-0, Vinyl sulfone 78-67-1, 2,2'-Azobisisobutyronitrile 94-36-0, Benzoyl peroxide, uses 105-64-6, Diisopropyl peroxy dicarbonate 105-74-8, Lauroyl peroxide 126-33-0, Tetramethylene sulfone 127-63-9, Phenyl sulfone 620-32-6, Benzyl sulfone 1561-49-5, Dicyclohexylperoxy dicarbonate 1712-87-4, m-Toluoyl peroxide 3006-82-4, tert-Butylperoxy-2-ethyl hexanoate 14666-78-5 15520-11-3, Bis(4-tert-butylcyclohexyl)peroxy dicarbonate 26748-41-4 28452-93-9, Butadiene sulfone 32752-09-3, Isobutyl peroxide 92177-99-6, 3,3,5-Trimethylhexanoyl peroxide
RL: MOA (Modifier or additive use); USES (Uses)
(electrolyte for lithium battery)
- IT 79-10-7DP, Acrylic acid, reaction product with dipentaerythritol and ϵ -caprolactone and butylcarbonic acid 126-58-9DP, Dipentaerythritol, reaction product with ϵ -caprolactone and acrylic acid and butylcarbonic acid 502-44-3DP, ϵ -Caprolactone, reaction product with dipentaerythritol and acrylic acid and butylcarbonic acid 10411-26-4DP, MonoButylcarbonate, reaction product with dipentaerythritol and ϵ -caprolactone and acrylic acid

RL: MOA (Modifier or additive use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(electrolyte for lithium battery)

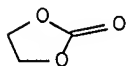
IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 7791-03-9, Lithium perchlorate 10377-51-2, Lithium iodide (LiI) 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 39300-70-4, Lithium nickel oxide 90076-65-6 131651-65-5, Lithium nonafluorobutanesulfonate 162684-16-4, Lithium manganese nickel oxide 193215-00-8, Cobalt lithiummanganese nickel oxide Co_{0.1}LiMn_{0.2}Ni_{0.7}O₂

RL: DEV (Device component use); USES (Uses)

(electrolyte for lithium battery)

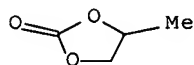
RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



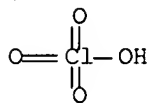
RN 108-32-7 HCAPLUS

CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



RN 7791-03-9 HCAPLUS

CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)



● Li

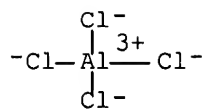
RN 10377-51-2 HCAPLUS

CN Lithium iodide (LiI) (CA INDEX NAME)

I-Li

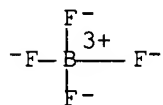
RN 14024-11-4 HCAPLUS

CN Aluminate(1-), tetrachloro-, lithium (1:1), (T-4)- (CA INDEX NAME)



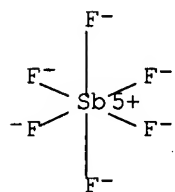
RN 14283-07-9 HCAPLUS

CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



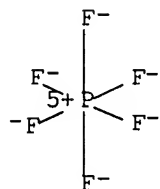
RN 18424-17-4 HCAPLUS

CN Antimonate(1-), hexafluoro-, lithium (1:1), (OC-6-11)- (CA INDEX NAME)



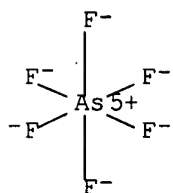
RN 21324-40-3 HCAPLUS

CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



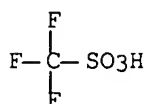
RN 29935-35-1 HCAPLUS

CN Arsenate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)

● Li⁺

RN 33454-82-9 HCAPLUS

CN Methanesulfonic acid, 1,1,1-trifluoro-, lithium salt (1:1) (CA INDEX NAME)



● Li

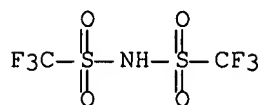
RN 39300-70-4 HCAPLUS

CN Lithium nickel oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Ni	x	7440-02-0
Li	x	7439-93-2

RN 90076-65-6 HCAPLUS

CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



● Li

RN 131651-65-5 HCAPLUS

CN 1-Butanesulfonic acid, 1,1,2,2,3,3,4,4,4-nonafluoro-, lithium salt (1:1) (CA INDEX NAME)

HO₃S-(CF₂)₃-CF₃

● Li

RN 162684-16-4 HCAPLUS

CN Lithium manganese nickel oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Ni	x	7440-02-0
Mn	x	7439-96-5
Li	x	7439-93-2

RN 193215-00-8 HCAPLUS

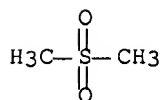
CN Cobalt lithium manganese nickel oxide (Co_{0.1}LiMn_{0.2}Ni_{0.7}O₂) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Co	0.1	7440-48-4
Ni	0.7	7440-02-0
Mn	0.2	7439-96-5
Li	1	7439-93-2

IT 67-71-0, Methyl sulfone 77-77-0, Vinyl sulfone
 78-67-1, 2,2'-Azobisisobutyronitrile 94-36-0, Benzoyl
 peroxide, uses 105-64-6, Diisopropyl peroxy dicarbonate
 105-74-8, Lauroyl peroxide 126-33-0, Tetramethylene
 sulfone 127-63-9, Phenyl sulfone 620-32-6, Benzyl
 sulfone 1561-49-5, Dicyclohexylperoxy dicarbonate
 1712-87-4, m-Toluoyl peroxide 3006-82-4,
 tert-Butylperoxy-2-ethyl hexanoate 14666-78-5 15520-11-3
 , Bis(4-tert-butylcyclohexyl)peroxy dicarbonate 28452-93-9,
 Butadiene sulfone 32752-09-3, Isobutyl peroxide
 92177-99-6, 3,3,5-Trimethylhexanoyl peroxide
 RL: MOA (Modifier or additive use); USES (Uses)
 (electrolyte for lithium battery)

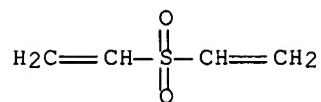
RN 67-71-0 HCAPLUS

CN Methane, 1,1'-sulfonylbis- (CA INDEX NAME)



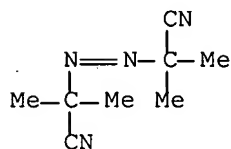
RN 77-77-0 HCAPLUS

CN Ethene, 1,1'-sulfonylbis- (CA INDEX NAME)



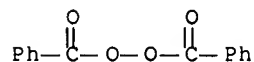
RN 78-67-1 HCAPLUS

CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)



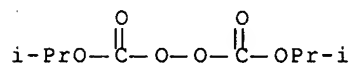
RN 94-36-0 HCAPLUS

CN Peroxide, dibenzoyl (CA INDEX NAME)



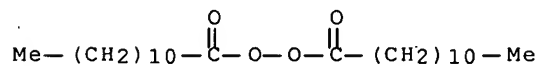
RN 105-64-6 HCAPLUS

CN Peroxydicarbonic acid, C,C'-bis(1-methylethyl) ester (CA INDEX NAME)



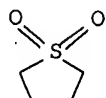
RN 105-74-8 HCAPLUS

CN Peroxide, bis(1-oxododecyl) (CA INDEX NAME)



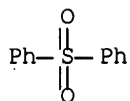
RN 126-33-0 HCAPLUS

CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



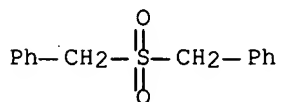
RN 127-63-9 HCAPLUS

CN Benzene, 1,1'-sulfonylbis- (CA INDEX NAME)



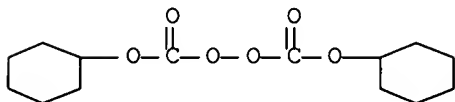
RN 620-32-6 HCAPLUS

CN Benzene, 1,1'-[sulfonylbis(methylene)]bis- (CA INDEX NAME)



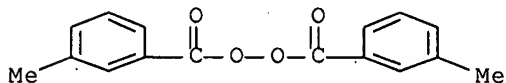
RN 1561-49-5 HCAPLUS

CN Peroxydicarbonic acid, C,C'-dicyclohexyl ester (CA INDEX NAME)



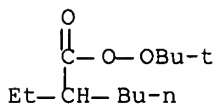
RN 1712-87-4 HCAPLUS

CN Peroxide, bis(3-methylbenzoyl) (9CI) (CA INDEX NAME)



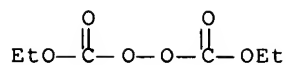
RN 3006-82-4 HCAPLUS

CN Hexaneperoxoic acid, 2-ethyl-, 1,1-dimethylethyl ester (CA INDEX NAME)



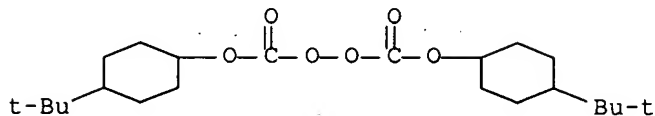
RN 14666-78-5 HCAPLUS

CN Peroxydicarbonic acid, diethyl ester (CA INDEX NAME)



RN 15520-11-3 HCAPLUS

CN Peroxydicarbonic acid, C,C'-bis[4-(1,1-dimethylethyl)cyclohexyl] ester
(CA INDEX NAME)



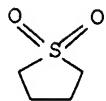
RN 28452-93-9 HCAPLUS

CN Thiophene, dihydro-, 1,1-dioxide (CA INDEX NAME)

CM 1

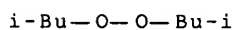
CRN 126-33-0

CMF C4 H8 O2 S



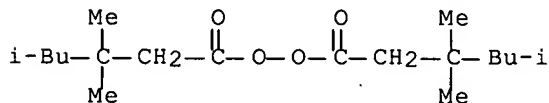
RN 32752-09-3 HCAPLUS

CN Peroxide, bis(2-methylpropyl) (CA INDEX NAME)



RN 92177-99-6 HCAPLUS

CN Peroxide, bis(3,3,5-trimethyl-1-oxohexyl) (9CI) (CA INDEX NAME)



IT 79-10-7DP, Acrylic acid, reaction product with

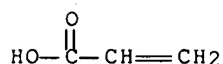
dipentaerythritol and ε-caprolactone and butylcarbonic acid

RL: MOA (Modifier or additive use); SPN (Synthetic preparation); PREP
(Preparation); USES (Uses)

(electrolyte for lithium battery)

RN 79-10-7 HCAPLUS

CN 2-Propenoic acid (CA INDEX NAME)



L135 ANSWER 6 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2004:182343 HCAPLUS Full-text

DN 140:202488

TI **Polymer electrolyte for lithium secondary battery with improved safety and reduced swelling**

IN Lee, Yong-beom

PA Samsung Sdi Co.,ltd., S. Korea

SO U.S. Pat. Appl. Publ., 8 pp.

CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2004043298	A1	20040304	US 2003-440245	20030519 <--
	KR 2004020631	A	20040309	KR 2002-52280	20020831 <--
	CN 1479401	A	20040303	CN 2003-152463	20030704 <--
PRAI	KR 2002-52280	A	20020831	<--	

AB The invention concerns a **polymer electrolyte** that extends the cycle life, improves the safety, and reduces the swelling of a **battery**, compared with a **polymer electrolyte** containing a poly(alkylene oxide) **polymer**. Also, a **lithium battery** utilizes the **polymer electrolyte**. The **polymer electrolyte** contains a **polymerized product** from a **polymer electrolyte forming composition** containing a multifunctional isocyanurate monomer of a particular structure, a **lithium salt**, and a nonaq. organic solvent.

IC ICM H01M0006-18

INCL 429323000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 38

ST **polymer electrolyte lithium secondary battery**
improved safety reduced swelling

IT Peroxides, processes

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)

(acyl, **polymerization initiator**; **polymer electrolyte for lithium secondary battery with improved safety and reduced swelling**)

IT Peroxides, processes

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)

(alkyl, **polymerization initiator**; **polymer electrolyte for lithium secondary battery with improved safety and reduced swelling**)

IT Hydroperoxides

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)

(alkyl, tertiary, **polymerization initiator**; **polymer electrolyte for lithium secondary battery with improved safety and reduced swelling**)

IT **Secondary batteries**

(lithium; **polymer electrolyte for lithium secondary battery with improved safety and reduced swelling**)

- IT Esters, processes
Ketals
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(peroxy, polymerization initiator; polymer electrolyte for lithium secondary battery with improved safety and reduced swelling)
- IT Carbonates, processes
Peroxides, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(peroxycarbonates, polymerization initiator; polymer electrolyte for lithium secondary battery with improved safety and reduced swelling)
- IT Battery electrolytes
Polymerization catalysts
Safety
Swelling, physical
(polymer electrolyte for lithium secondary battery with improved safety and reduced swelling)
- IT Carbon fibers, uses
Carbonaceous materials (technological products)
RL: DEV (Device component use); USES (Uses)
(polymer electrolyte for lithium secondary battery with improved safety and reduced swelling)
- IT Azo compounds
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(polymerization initiator; polymer electrolyte for lithium secondary battery with improved safety and reduced swelling)
- IT Lithium alloy, base
RL: DEV (Device component use); USES (Uses)
(polymer electrolyte for lithium secondary battery with improved safety and reduced swelling)
- IT 96-47-9, 2-Methyltetrahydrofuran 96-48-0,
γ-Butyrolactone 96-49-1, Ethylene carbonate 105-58-8,
Diethyl carbonate 107-31-3, Methyl formate 108-32-7, Propylene carbonate 109-94-4, Ethyl formate 109-99-9, Thf, uses
112-49-2, Triglyme 143-24-8, Tetraglyme 462-06-6, Fluorobenzene 616-38-6, Dimethyl carbonate 4824-75-3, Butylmethyl carbonate 7439-93-2, Lithium, uses 7704-34-9, Sulfur, uses 7704-34-9D, Sulfur, compds. 7782-42-5, Graphite, uses 7791-03-9, Lithium perchlorate 12190-79-3, Cobalt lithium oxide colio2 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 27858-05-5, DiFluorobenzene 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 35363-40-7, Ethyl propylcarbonate, uses 39300-70-4, Lithium nickel oxide 39457-42-6, Lithium manganese oxide 51177-06-1, Chromium lithium oxide 52627-24-4, Cobalt lithium oxide 56525-42-9, Methyl propylcarbonate, uses 73506-93-1, Diethoxyethane 90076-65-6 131651-65-5 132843-44-8 654675-99-7, Lithium boride fluoride libf6
RL: DEV (Device component use); USES (Uses)
(polymer electrolyte for lithium secondary battery with improved safety and reduced swelling)
- IT 42033-33-0P, Tris(2-acryloyloxy)ethyl isocyanurate homopolymer 90802-77-0P 93295-01-3P
RL: DEV (Device component use); SPN (Synthetic preparation); PREP

(Preparation); USES (Uses)

(polymer electrolyte for lithium secondary
battery with improved safety and reduced swelling)

IT 15520-11-3, Di(4-tert-butylcyclohexyl)peroxy dicarbonate
34099-48-4, Peroxydicarbonate

RL: CPS (Chemical process); PEP (Physical, engineering or chemical
process); PROC (Process)

(polymerization initiator; polymer electrolyte
for lithium secondary battery with improved safety and
reduced swelling)

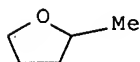
IT 96-47-9, 2-Methyltetrahydrofuran 96-48-0,
γ-Butyrolactone 96-49-1, Ethylene carbonate
108-32-7, Propylene carbonate 109-99-9, Thf, uses
7439-93-2, Lithium, uses 7704-34-9, Sulfur, uses
7704-34-9D, Sulfur, compds. 7791-03-9, Lithium
perchlorate 12190-79-3, Cobalt lithium oxide colio2
14283-07-9, Lithium tetrafluoroborate 21324-40-3,
Lithium hexafluorophosphate 29935-35-1, Lithium
hexafluoroarsenate 33454-82-9, Lithium triflate
39300-70-4, Lithium nickel oxide 39457-42-6, Lithium
manganese oxide 51177-06-1, Chromium lithium oxide
52627-24-4, Cobalt lithium oxide 90076-65-6
131651-65-5 132843-44-8 654675-99-7, Lithium
boride fluoride libf6

RL: DEV (Device component use); USES (Uses)

(polymer electrolyte for lithium secondary
battery with improved safety and reduced swelling)

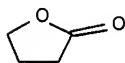
RN 96-47-9 HCAPLUS

CN Furan, tetrahydro-2-methyl- (CA INDEX NAME)



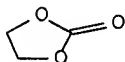
RN 96-48-0 HCAPLUS

CN 2(3H)-Furanone, dihydro- (CA INDEX NAME)



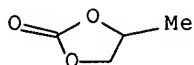
RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 108-32-7 HCAPLUS

CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



RN 109-99-9 HCAPLUS
 CN Furan, tetrahydro- (CA INDEX NAME)



RN 7439-93-2 HCAPLUS
 CN Lithium (CA INDEX NAME)

Li

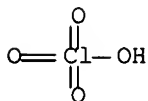
RN 7704-34-9 HCAPLUS
 CN Sulfur (CA INDEX NAME)

S

RN 7704-34-9 HCAPLUS
 CN Sulfur (CA INDEX NAME)

S

RN 7791-03-9 HCAPLUS
 CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)



● Li

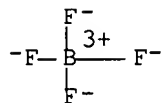
RN 12190-79-3 HCAPLUS
 CN Cobalt lithium oxide (CoLiO2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Co	1	7440-48-4

Li | 1 | 7439-93-2

RN 14283-07-9 HCAPLUS

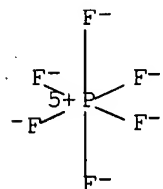
CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



● Li⁺

RN 21324-40-3 HCAPLUS

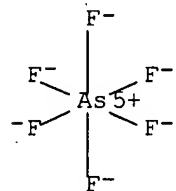
CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



● Li⁺

RN 29935-35-1 HCAPLUS

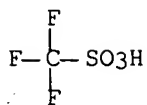
CN Arsenate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



● Li⁺

RN 33454-82-9 HCAPLUS

CN Methanesulfonic acid, 1,1,1-trifluoro-, lithium salt (1:1) (CA INDEX NAME)



● Li

RN 39300-70-4 HCAPLUS
CN Lithium nickel oxide (CA INDEX NAME)

Component	Ratio	Component
		Registry Number
=====	=====	=====
O	x	17778-80-2
Ni	x	7440-02-0
Li	x	7439-93-2

RN 39457-42-6 HCAPLUS
CN Lithium manganese oxide (CA INDEX NAME)

Component	Ratio	Component
		Registry Number
=====	=====	=====
O	x	17778-80-2
Mn	x	7439-96-5
Li	x	7439-93-2

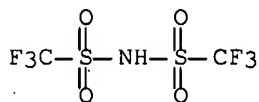
RN 51177-06-1 HCAPLUS
CN Chromium lithium oxide (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 52627-24-4 HCAPLUS
CN Cobalt lithium oxide (CA INDEX NAME)

Component	Ratio	Component
		Registry Number
=====	=====	=====
O	x	17778-80-2
Co	x	7440-48-4
Li	x	7439-93-2

RN 90076-65-6 HCAPLUS
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



● Li

RN 131651-65-5 HCAPLUS
CN 1-Butanesulfonic acid, 1,1,2,2,3,3,4,4,4-nonafluoro-, lithium salt (1:1)

$$\text{HO}_3\text{S}-(\text{CF}_2)_3-\text{CF}_3$$

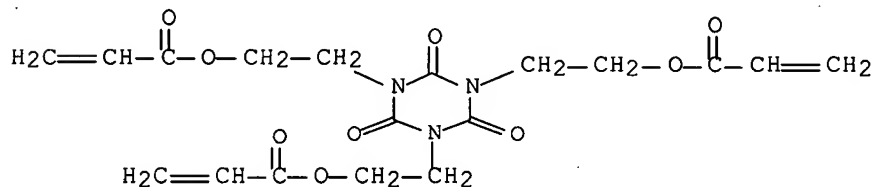
$$\text{F}_3\text{C}-\text{CF}_2-\text{S}(=\text{O})_2-\text{NH}-\text{S}(=\text{O})_2-\text{CF}_2-\text{CF}_3$$


Component	Ratio	Component Registry Number
F	6	14762-94-8
B	1	7440-42-8
Li	1	7439-93-2

RN	42033-33-0	HCAPLUS
CN	2-Propenoic acid, 1,1',1''-[(2,4,6-trioxo-1,3,5-triazine-1,3,5(2H,4H,6H)-triyl)tri-2,1-ethanediyl] ester, homopolymer (CA INDEX NAME)	

CM 1

CRN 40220-08-4
CMF C18 H21 N3 O9

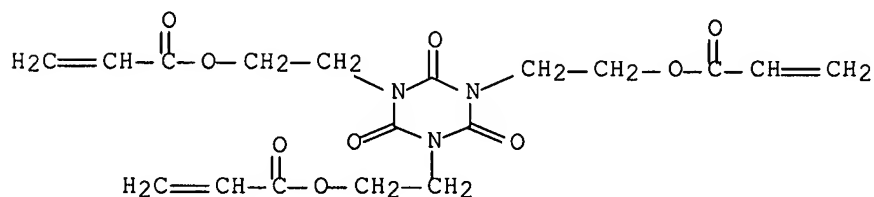


RN 90802-77-0 HCAPLUS
 CN 2-Propenoic acid, (2,4,6-trioxo-1,3,5-triazine-1,3,5(2H,4H,6H)-triyl)tri-2,1-ethanediyl ester, polymer with oxydi-2,1-ethanediyl di-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 40220-08-4

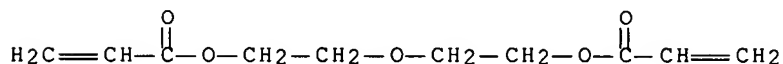
CMF C18 H21 N3 O9



CM 2

CRN 4074-88-8

CMF C10 H14 O5

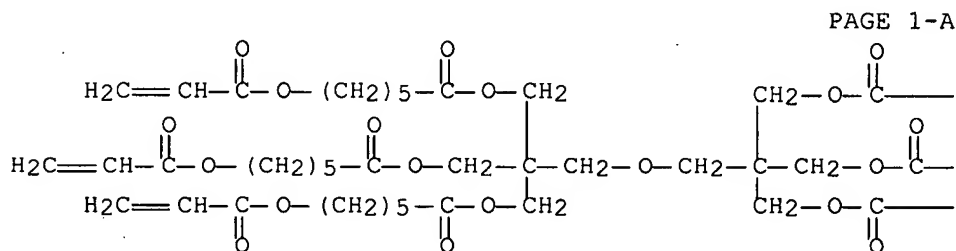


RN 93295-01-3 HCAPLUS
 CN Hexanoic acid, 6-[(1-oxo-2-propenyl)oxy]-, 2-[[3-[[1-oxo-6-[(1-oxo-2-propenyl)oxy]hexyl]oxy]-2,2-bis[[[1-oxo-6-[(1-oxo-2-propenyl)oxy]hexyl]oxy]methyl]propoxy]methyl]-2-[[[1-oxo-6-[(1-oxo-2-propenyl)oxy]hexyl]oxy]methyl]-1,3-propanediyl ester, polymer with (2,4,6-trioxo-1,3,5-triazine-1,3,5(2H,4H,6H)-triyl)tri-2,1-ethanediyl tri-2-propenoate (9CI) (CA INDEX NAME)

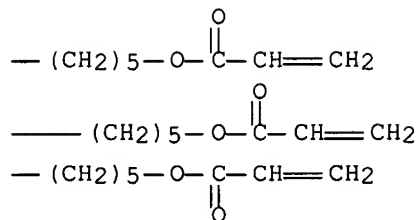
CM 1

CRN 93294-97-4

CMF C64 H94 O25



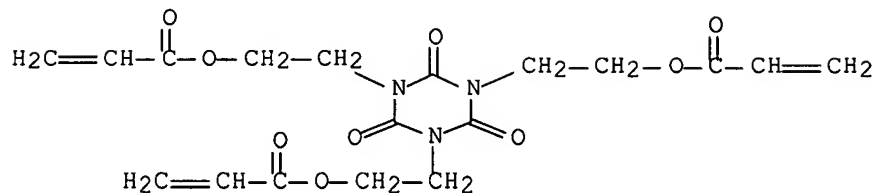
PAGE 1-B



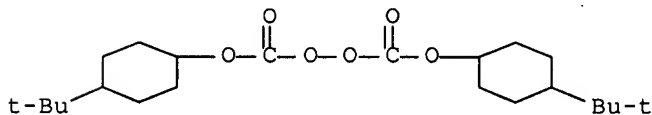
CM 2

CRN 40220-08-4

CMF C18 H21 N3 O9



IT 15520-11-3, Di(4-tert-butylcyclohexyl)peroxy dicarbonate
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
 (polymerization initiator; polymer electrolyte for lithium secondary battery with improved safety and reduced swelling)
 RN 15520-11-3 HCAPLUS
 CN Peroxydicarbonic acid, C,C'-bis[4-(1,1-dimethylethyl)cyclohexyl] ester (CA INDEX NAME)



L135 ANSWER 7 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2004:119841 HCAPLUS Full-text

DN 140:166772

TI Polymer electrolyte for lithium-sulfur battery

IN Hwang, Duck-chul; Lee, Kyoung-hee

PA Samsung Sdi Co., Ltd., S. Korea

SO U.S. Pat. Appl. Publ., 15 pp.

CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

PATENT NO.

KIND

DATE

APPLICATION NO.

DATE

PI US 2004029016 A1 20040212 US 2003-635122 20030806 <--
 KR 2004014163 A 20040214 KR 2003-28968 20030507 <--
 JP 2004071560 A 20040304 JP 2003-279998 20030725 <--
 CN 1495956 A 20040512 CN 2003-127275 20030807 <--
 PRAI KR 2002-46580 A 20020807 <--
 KR 2003-28968 A 20030507 <--
 AB Disclosed is a **polymer electrolyte** for a lithium sulfur battery. The electrolyte includes a monomer with a **methacrylate** group, an initiator, an organic solvent, and a lithium salt.
 IC ICM H01M0010-40
 INCL 429317000; X42-918.9; X42-930.7
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 38
 ST **polymer electrolyte** lithium sulfur battery
 IT Polyesters, uses
 RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (hexacrylate-based; **polymer electrolyte** for lithium-sulfur battery)
 IT **Secondary batteries**
 (lithium; **polymer electrolyte** for lithium-sulfur battery)
 IT Intercalation compounds
 RL: DEV (Device component use); USES (Uses)
 (lithium; **polymer electrolyte** for lithium-sulfur battery)
 IT Alcohols, uses
 RL: DEV (Device component use); USES (Uses)
 (polyhydric, esters; **polymer electrolyte** for lithium-sulfur battery)
 IT Lithium alloy, base
 RL: DEV (Device component use); USES (Uses)
 (**polymer electrolyte** for lithium-sulfur battery)
 IT 3087-37-4, Tetrapropyltitanate
 RL: CAT (Catalyst use); USES (Uses)
 (**polymer electrolyte** for lithium-sulfur battery)
 IT 56-81-5, Glycerol, uses 110-71-4 149-32-6, Erythritol 646-06-0, 1,3-Dioxolane 7439-93-2, Lithium, uses 7439-93-2D, Lithium, intercalation compound 7704-34-9, Sulfur, uses 7704-34-9D, Sulfur, compound 74432-42-1, Lithium polysulfide 90076-65-6
 RL: DEV (Device component use); USES (Uses)
 (**polymer electrolyte** for lithium-sulfur battery)
 IT 79-10-7DP, Acrylic acid, reaction product with dipentaerythritol and ϵ -caprolactone and butylcarbonic acid
 126-58-9DP, Dipentaerythritol, reaction product with ϵ -caprolactone and acrylic acid and butylcarbonic acid
 502-44-3DP, ϵ -Caprolactone, reaction product with dipentaerythritol and acrylic acid and butylcarbonic acid
 10411-26-4DP, reaction product with dipentaerythritol and ϵ -caprolactone and acrylic acid
 RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (**polymer electrolyte** for lithium-sulfur battery)

IT 180049-13-2, Aluminum boride nitride Albn
 RL: MOA (Modifier or additive use); USES (Uses)
 (polymer electrolyte for lithium-sulfur
 battery)

IT 75-91-2, tert-Butylhydroperoxide 78-63-7,
 2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane 78-67-1,
 Azobisisobutyronitrile 80-15-9, Cumene hydroperoxide
 80-43-3, Dicumyl peroxide 94-36-0, Benzoyl peroxide,
 processes 105-64-6, Diisopropyl peroxy dicarbonate
 105-74-8, Lauroyl peroxide 110-05-4, Di-tert-butyl
 peroxide 1561-49-5, Dicyclo hexylperoxy dicarbonate 1712-87
 -4, m-Toluoyl peroxide 2167-23-9, 2,2-Di(tert-
 butylperoxy)butane 3006-82-4, tert-Butyl peroxy-2-ethyl
 hexanoate 3025-88-5, 2,5-Dihydroperoxy-2,5-dimethylhexane
 14666-78-5 15520-11-3, Bis(4-tert-butylcyclohexyl)peroxy
 dicarbonate 16066-38-9, Di(n-propyl)peroxy-dicarbonate
 16111-62-9, Di(2-ethylhexyl)peroxydicarbonate 19910-65-7
 , Di(sec-butyl)peroxy dicarbonate 26748-47-0, α -Cumyl
 peroxy neodecanoate 32752-09-3, Isobutyl peroxide
 52373-75-8 55794-20-2, Ethyl 3,3-di(tert-
 butylperoxy)butyrate 92177-99-6, 3,3,5-Trimethylhexanoyl
 peroxide 95732-35-7 116657-72-8, tert-Butyl
 neodecanoate 118416-46-9
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical
 process); PROC (Process)
 (polymerization initiator; polymer electrolyte
 for lithium-sulfur battery)

IT 646-06-0, 1,3-Dioxolane 7439-93-2, Lithium, uses
 7439-93-2D, Lithium, intercalation compound 7704-34-9,
 Sulfur, uses 7704-34-9D, Sulfur, compound 74432-42-1,
 Lithium polysulfide 90076-65-6
 RL: DEV (Device component use); USES (Uses)
 (polymer electrolyte for lithium-sulfur
 battery)

RN 646-06-0 HCAPLUS
 CN 1,3-Dioxolane (CA INDEX NAME)



RN 7439-93-2 HCAPLUS
 CN Lithium (CA INDEX NAME)

Li

RN 7439-93-2 HCAPLUS
 CN Lithium (CA INDEX NAME)

Li

RN 7704-34-9 HCAPLUS
CN Sulfur (CA INDEX NAME)

S

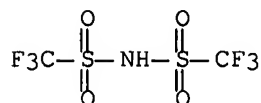
RN 7704-34-9 HCAPLUS
CN Sulfur (CA INDEX NAME)

S

RN 74432-42-1 HCAPLUS
CN Lithium sulfide (Li₂(Sx)) (CA INDEX NAME)

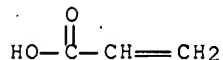
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 90076-65-6 HCAPLUS
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-,
lithium salt (1:1) (CA INDEX NAME)



● Li

IT 79-10-7DP, Acrylic acid, reaction product with
dipentaerythritol and ε-caprolactone and butylcarbonic acid
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic
preparation); PREP (Preparation); USES (Uses)
(polymer electrolyte for lithium-sulfur
battery)
RN 79-10-7 HCAPLUS
CN 2-Propenoic acid (CA INDEX NAME)



IT 75-91-2, tert-Butylhydroperoxide 78-63-7,
2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane 78-67-1,
Azobisisobutyronitrile 80-15-9, Cumene hydroperoxide
80-43-3, Dicumyl peroxide 94-36-0, Benzoyl peroxide,
processes 105-64-6, Diisopropyl peroxy dicarbonate
105-74-8, Lauroyl peroxide 110-05-4, Di-tert-butyl
peroxide 1561-49-5, Dicyclo hexylperoxy dicarbonate
1712-87-4, m-Toluoyl peroxide 2167-23-9,
2,2-Di(tert-butylperoxy)butane 3006-82-4, tert-Butyl
peroxy-2-ethyl hexanoate 3025-88-5, 2,5-Dihydroperoxy-2,5-

dimethylhexane 14666-78-5 15520-11-3,
 Bis(4-tert-butylcyclohexyl)peroxy dicarbonate 16066-38-9,
 Di(n-propyl)peroxy-dicarbonate 16111-62-9, Di(2-ethylhexyl)peroxydicarbonate 19910-65-7, Di(sec-butyl)peroxy dicarbonate 26748-47-0, α -Cumyl peroxy neodecanoate 32752-09-3, Isobutyl peroxide 52373-75-8 55794-20-2, Ethyl 3,3-di(tert-butylperoxy)butyrate 92177-99-6, 3,3,5-Trimethylhexanoyl peroxide 95732-35-7 116657-72-8, tert-Butyl neodecanoate 118416-46-9
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
 (polymerization initiator; polymer electrolyte for lithium-sulfur battery)

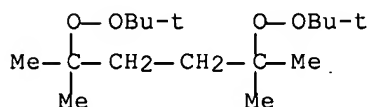
RN 75-91-2 HCAPLUS

CN Hydroperoxide, 1,1-dimethylethyl (CA INDEX NAME)

HO—O—Bu-t

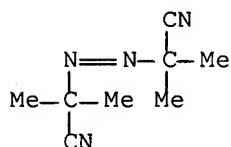
RN 78-63-7 HCAPLUS

CN Peroxide, 1,1'-(1,1,4,4-tetramethyl-1,4-butanediyl)bis[2-(1,1-dimethylethyl) (CA INDEX NAME)



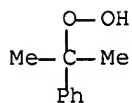
RN 78-67-1 HCAPLUS

CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)



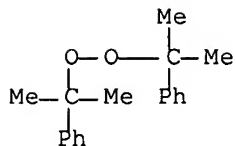
RN 80-15-9 HCAPLUS

CN Hydroperoxide, 1-methyl-1-phenylethyl (CA INDEX NAME)

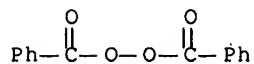


RN 80-43-3 HCAPLUS

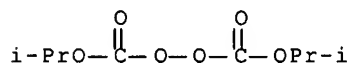
CN Peroxide, bis(1-methyl-1-phenylethyl) (CA INDEX NAME)



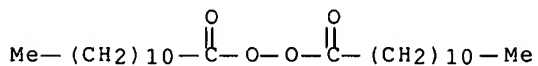
RN 94-36-0 HCAPLUS
 CN Peroxide, dibenzoyl (CA INDEX NAME)



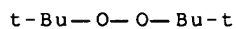
RN 105-64-6 HCAPLUS
 CN Peroxydicarbonic acid, C,C'-bis(1-methylethyl) ester (CA INDEX NAME)



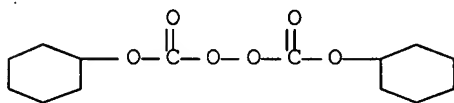
RN 105-74-8 HCAPLUS
 CN Peroxide, bis(1-oxododecyl) (CA INDEX NAME)



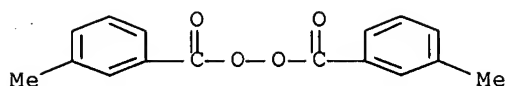
RN 110-05-4 HCAPLUS
 CN Peroxide, bis(1,1-dimethylethyl) (CA INDEX NAME)



RN 1561-49-5 HCAPLUS
 CN Peroxydicarbonic acid, C,C'-dicyclohexyl ester (CA INDEX NAME)

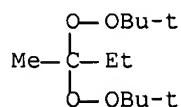


RN 1712-87-4 HCAPLUS
 CN Peroxide, bis(3-methylbenzoyl) (9CI) (CA INDEX NAME)



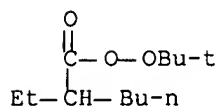
RN 2167-23-9 HCAPLUS

CN Peroxide, 1,1'-(1-methylpropylidene)bis[2-(1,1-dimethylethyl) (CA INDEX NAME)



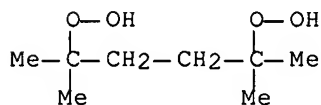
RN 3006-82-4 HCAPLUS

CN Hexaneperoxoic acid, 2-ethyl-, 1,1-dimethylethyl ester (CA INDEX NAME)



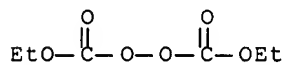
RN 3025-88-5 HCAPLUS

CN Hydroperoxide, 1,1'-(1,1,4,4-tetramethyl-1,4-butanediyl)bis- (CA INDEX NAME)



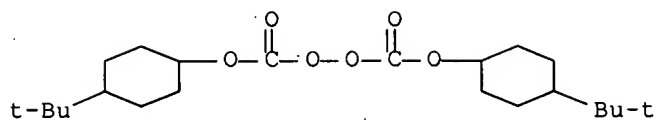
RN 14666-78-5 HCAPLUS

CN Peroxydicarbonic acid, diethyl ester (CA INDEX NAME)



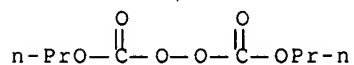
RN 15520-11-3 HCAPLUS

CN Peroxydicarbonic acid, C,C'-bis[4-(1,1-dimethylethyl)cyclohexyl] ester (CA INDEX NAME)



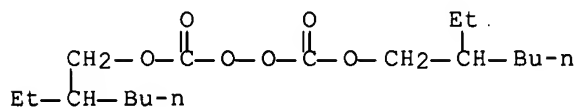
RN 16066-38-9 HCAPLUS

CN Peroxydicarbonic acid, C,C'-dipropyl ester (CA INDEX NAME)



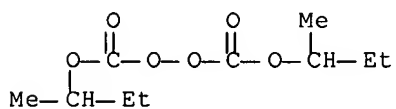
RN 16111-62-9 HCAPLUS

CN Peroxydicarbonic acid, C,C'-bis(2-ethylhexyl) ester (CA INDEX NAME)



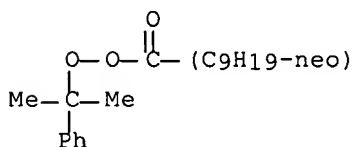
RN 19910-65-7 HCAPLUS

CN Peroxydicarbonic acid, C,C'-bis(1-methylpropyl) ester (CA INDEX NAME)



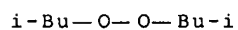
RN 26748-47-0 HCAPLUS

CN Neodecaneperoxoic acid, 1-methyl-1-phenylethyl ester (CA INDEX NAME)



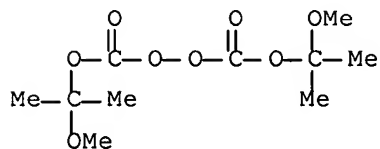
RN 32752-09-3 HCAPLUS

CN Peroxide, bis(2-methylpropyl) (CA INDEX NAME)



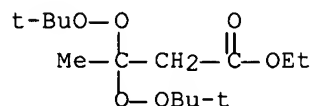
RN 52373-75-8 HCAPLUS

CN Peroxydicarbonic acid, bis(1-methoxy-1-methylethyl) ester (9CI) (CA INDEX NAME)



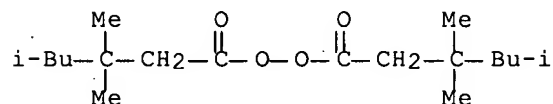
RN 55794-20-2 HCAPLUS

CN Butanoic acid, 3,3-bis[(1,1-dimethylethyl)dioxy]-, ethyl ester (CA INDEX NAME)



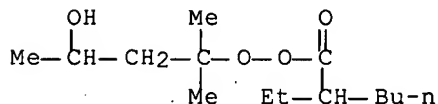
RN 92177-99-6 HCAPLUS

CN Peroxide, bis(3,3,5-trimethyl-1-oxohexyl) (9CI) (CA INDEX NAME)



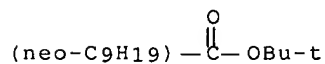
RN 95732-35-7 HCAPLUS

CN Hexaneperoxoic acid, 2-ethyl-, 3-hydroxy-1,1-dimethylbutyl ester (CA INDEX NAME)



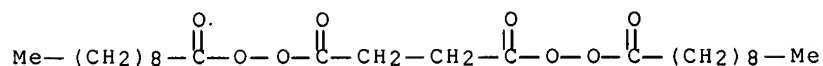
RN 116657-72-8 HCAPLUS

CN Neodecanoic acid, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)



RN 118416-46-9 HCAPLUS

CN Peroxide, (1,4-dioxo-1,4-butanediyl)bis[(1-oxodecyl) (9CI) (CA INDEX NAME)



L135 ANSWER 8 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2004:59637 HCAPLUS Full-text

DN 140:79861

TI Method of fabrication of lithium secondary battery

IN Lee, Jin-young; Lee, Kyoung-hee

PA S. Korea

SO U.S. Pat. Appl. Publ., 7 pp.

CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2004013944	A1	20040122	US 2003-617811	20030714 <--
	KR 2004006781	A	20040124	KR 2002-41169	20020715 <--
	JP 2004039642	A	20040205	JP 2003-274506	20030715 <--
	CN 1501542	A	20040602	CN 2003-165003	20030715 <--
PRAI	KR 2002-41169	A	20020715	<--	

AB A lithium secondary battery of the present invention comprises a pos. electrode; a neg. electrode; a separator interposed between the pos. and neg. electrodes; and an electrolyte on the separator, wherein the electrolyte includes a nonaq. organic solvent, a lithium salt, and a linear polymer having P=O bonds. The electrolyte improves the swelling characteristics of lithium secondary batteries. A lithium secondary battery with the electrolyte and a method for preparing the electrolyte and battery is described.

IC ICM H01M0010-40

INCL 429317000; 429307000; 429338000; 429342000; 429314000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium secondary battery fabrication

IT Aromatic hydrocarbons, uses

RL: DEV (Device component use); USES (Uses)

(C1-10 alkyl substituted; method of fabrication of lithium secondary battery)

IT Secondary batteries

(lithium; method of fabrication of lithium secondary battery)

IT Battery electrolytes

Swelling, physical

(method of fabrication of lithium secondary battery)

IT Esters, uses

Ethers, uses

Ketones, uses

RL: DEV (Device component use); USES (Uses)

(method of fabrication of lithium secondary battery)

IT Lithium alloy, base

RL: DEV (Device component use); USES (Uses)

(method of fabrication of lithium secondary battery)

IT 71-43-2, Benzene, uses 96-49-1, Ethylene carbonate 105-58-8,

Diethyl carbonate 108-32-7, Propylene carbonate 108-88-3,

Toluene, uses 462-06-6, Fluorobenzene 463-79-6D, Carbonic acid, cyclic

compds. 463-79-6D, Carbonic acid, linear compound 463-79-6D, Carbonic acid, organic compound 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 623-96-1, Dipropyl carbonate 1330-20-7, Xylene, uses 4437-85-8, Butylene carbonate 7447-41-8, Lithium chloride (LiCl), uses 7791-03-9, Lithium perchlorate 10377-51-2, Lithium iodide (LiI) 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 25496-08-6, Fluorotoluene 27359-10-0, Trifluorotoluene 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 35363-40-7, Ethyl propyl carbonate, uses 37220-89-6, Lithium aluminate 56525-42-9, Methyl propyl carbonate, uses 90076-65-6 131651-65-5, Lithium nonafluorobutanesulfonate

RL: DEV (Device component use); USES (Uses)

(method of fabrication of lithium secondary battery)

IT 7439-93-2, Lithium, uses

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)

(method of fabrication of lithium secondary battery)

IT 78-67-1, Azobisisobutyronitrile 682-30-4, Diethyl vinyl phosphonate 4472-22-4, Dipropyl vinyl phosphonate 4645-32-3, Dimethyl vinyl phosphonate 4851-64-3, Diethyl vinyl phosphate 24599-21-1 41891-54-7, Triethyl 3-methyl-4-phosphonocrotonate 108554-72-9 113187-28-3, Allyl diethyl phosphonoacetate

RL: MOA (Modifier or additive use); USES (Uses)

(method of fabrication of lithium secondary battery)

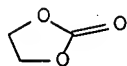
IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 7447-41-8, Lithium chloride (LiCl), uses 7791-03-9, Lithium perchlorate 10377-51-2, Lithium iodide (LiI) 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 37220-89-6, Lithium aluminate 90076-65-6 131651-65-5, Lithium nonafluorobutanesulfonate

RL: DEV (Device component use); USES (Uses)

(method of fabrication of lithium secondary battery)

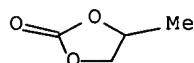
RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 108-32-7 HCAPLUS

CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



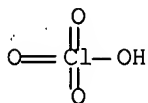
RN 7447-41-8 HCAPLUS

CN Lithium chloride (LiCl) (CA INDEX NAME)

Cl-Li

RN 7791-03-9 HCAPLUS

CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)



● Li

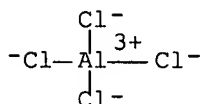
RN 10377-51-2 HCAPLUS

CN Lithium iodide (LiI) (CA INDEX NAME)

I-Li

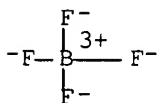
RN 14024-11-4 HCAPLUS

CN Aluminate(1-), tetrachloro-, lithium (1:1), (T-4)- (CA INDEX NAME)

● Li⁺

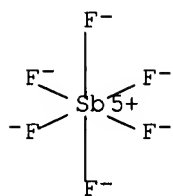
RN 14283-07-9 HCAPLUS

CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)

● Li⁺

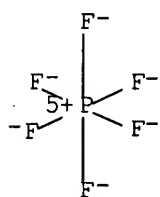
RN 18424-17-4 HCAPLUS

CN Antimonate(1-), hexafluoro-, lithium (1:1), (OC-6-11)- (CA INDEX NAME)



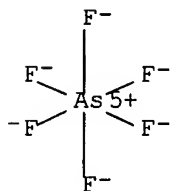
RN 21324-40-3 HCAPLUS

CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



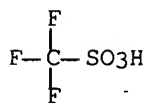
RN 29935-35-1 HCAPLUS

CN Arsenate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



RN 33454-82-9 HCAPLUS

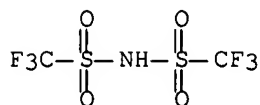
CN Methanesulfonic acid, 1,1,1-trifluoro-, lithium salt (1:1) (CA INDEX NAME)



RN 37220-89-6 HCAPLUS
 CN Aluminum lithium oxide (CA INDEX NAME)

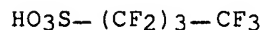
Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Li	x	7439-93-2
Al	x	7429-90-5

RN 90076-65-6 HCAPLUS
 CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-,
 lithium salt (1:1) (CA INDEX NAME)



● Li

RN 131651-65-5 HCAPLUS
 CN 1-Butanesulfonic acid, 1,1,2,2,3,3,4,4,4-nonafluoro-, lithium salt (1:1)
 (CA INDEX NAME)

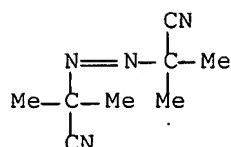


● Li

IT 7439-93-2, Lithium, uses
 RL: DEV (Device component use); PEP (Physical, engineering or chemical
 process); PYP (Physical process); PROC (Process); USES (Uses)
 (method of fabrication of lithium secondary battery)
 RN 7439-93-2 HCAPLUS
 CN Lithium (CA INDEX NAME)

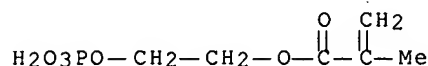
Li

IT 78-67-1, Azobisisobutyronitrile 24599-21-1
 RL: MOA (Modifier or additive use); USES (Uses)
 (method of fabrication of lithium secondary battery)
 RN 78-67-1 HCAPLUS
 CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)



RN 24599-21-1 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-(phosphonooxy)ethyl ester (CA INDEX NAME)



L135 ANSWER 9 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2003:989967 HCAPLUS Full-text

DN 140:29515

TI Polymer electrolyte with effective leakage resistance
for lithium battery

IN Lee, Kyoung-hee; Kim, Ki-ho

PA Samsung SDI Co., Ltd, S. Korea

SO U.S. Pat. Appl. Publ., 11 pp.

CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003232240	A1	20031218	US 2003-461489	20030616 <--
	US 7226701	B2	20070605		
	KR 2003097009	A	20031231	KR 2002-34130	20020618 <--
	CN 1479402	A	20040303	CN 2003-152467	20030618 <--
PRAI	KR 2002-34130	A	20020618	<--	

AB A polymer electrolyte has improved leakage resistance and a lithium battery uses the polymer electrolyte. The polymer electrolyte includes a polymerization product of a polymer electrolyte forming composition that includes a multifunctional acrylate based compound, at least one selected from the group consisting of polyalkylene glycol di(meth)acrylates and polyalkylene glycol (meth) acrylates, and an electrolytic solution containing a lithium salt and an organic solvent.

IC ICM H01M0006-00

INCL 429122000; 429188000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy
Technology)

Section cross-reference(s): 38

ST lithium battery polymer electrolyte
effective leakage resistance

IT Polyoxyalkylenes, uses

RL: DEV (Device component use); USES (Uses)

(acrylate-terminated; polymer electrolyte

with effective leakage resistance for lithium battery)

IT Polymerization

(irradiation; polymer electrolyte with effective
leakage resistance for lithium battery)

IT Secondary batteries

(lithium; polymer electrolyte with effective leakage resistance for lithium battery)

IT Battery electrolytes

Leak

Polymer electrolytes

Polymerization catalysts

(polymer electrolyte with effective leakage resistance for lithium battery)

IT Carbon fibers, uses

RL: DEV (Device component use); USES (Uses)

(polymer electrolyte with effective leakage resistance for lithium battery)

IT 102-71-6, Triethanolamine, uses 102-82-9, Tributylamine 103-83-3, N-Benzyl dimethylamine 121-44-8, Triethylamine, uses 3087-37-4, Tetrapropyl titanate

RL: CAT (Catalyst use); USES (Uses)

(polymer electrolyte with effective leakage resistance for lithium battery)

IT 126-58-9DP, Dipentaerythritol, derivative, reaction product with acrylic acid and butylcarboxylic acid 126-58-9DP, Dipentaerythritol, with pentyl alc.-substituted terminal hydroxy groups
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)

(polymer electrolyte with effective leakage resistance for lithium battery)

IT 96-47-9, 2-Methyltetrahydrofuran 96-48-0,

γ-Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 107-31-3, Methyl formate 108-32-7, Propylene carbonate 109-94-4, Ethyl formate 109-99-9, Thf, uses 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 7791-03-9, Lithium perchlorate 9002-88-4, Polyethylene 9003-07-0, Polypropylene 12190-79-3, Cobalt lithium oxide colio2 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 33454-82-9, Lithium triflate 73506-93-1, Diethoxyethane 90076-65-6

RL: DEV (Device component use); USES (Uses)

(polymer electrolyte with effective leakage resistance for lithium battery)

IT 9056-77-3DP, Polyethylene glycol methacrylate, reaction product with dipentaerythritol derivative and acrylic acid and butylcarboxylic acid 25852-47-5DP, Polyethylene glycol dimethacrylate, reaction product with dipentaerythritol derivative and acrylic acid and butylcarboxylic acid

RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(polymer electrolyte with effective leakage resistance for lithium battery)

IT 75-91-2, tert-Butyl hydroperoxide 78-63-7,

2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane 78-67-1, Azobisisobutyronitrile 80-15-9, Cumene hydroperoxide 80-43-3, Dicumyl peroxide 94-36-0, Dibenzoyl peroxide, uses 105-64-6, Diisopropyl peroxydicarbonate 105-74-8, Dilauroyl peroxide 110-05-4, Di-tert-butyl peroxide 762-12-9, Didecanoyl peroxide 1561-49-5, Dicyclohexyl peroxy dicarbonate 1712-87-4, m-Toluoyl peroxide 2167-23-9, 2,2-Di-(tert-butylperoxy)butane 2279-96-1, Peroxysuccinic acid 3025-88-5, 2,5-Dihydroperoxy-2,5-dimethylhexane 14666-78-5 15520-11-3, Bis(4-tert-butylcyclohexyl)peroxydicarbonate 15667-10-4, 1,1-Di-(tert-amylperoxy)cyclohexane 16066-38-9, Di(n-propyl)peroxydicarbonate 16111-62-9, Di(2-

ethylhexyl)peroxydicarbonate 19910-65-7, Di(sec-butyl)peroxydicarbonate 25906-27-8 26748-47-0, α -Cumyl peroxyneodecanoate 32752-09-3, Isobutyl peroxide 52373-75-8 55794-20-2, Ethyl 3,3-di-(tert-butylperoxy)butyrate 92177-99-6, 3,3,5-Trimethylhexanoyl peroxide 95732-35-7

RL: CAT (Catalyst use); USES (Uses)

(polymerization initiator; polymer electrolyte with effective leakage resistance for lithium battery)

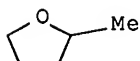
IT 96-47-9, 2-Methyltetrahydrofuran 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 109-99-9, Thf, uses 7791-03-9, Lithium perchlorate 12190-79-3, Cobalt lithium oxide colio2 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 33454-82-9, Lithium triflate 90076-65-6

RL: DEV (Device component use); USES (Uses)

(polymer electrolyte with effective leakage resistance for lithium battery)

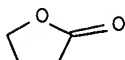
RN 96-47-9 HCAPLUS

CN Furan, tetrahydro-2-methyl- (CA INDEX NAME)



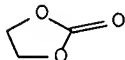
RN 96-48-0 HCAPLUS

CN 2(3H)-Furanone, dihydro- (CA INDEX NAME)



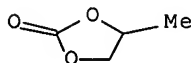
RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 108-32-7 HCAPLUS

CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



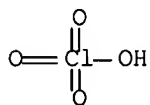
RN 109-99-9 HCAPLUS

CN Furan, tetrahydro- (CA INDEX NAME)



RN 7791-03-9 HCAPLUS

CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)



● Li

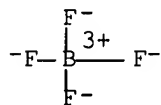
RN 12190-79-3 HCAPLUS

CN Cobalt lithium oxide (CoLiO2) (CA INDEX NAME)

Component	Ratio	Component
		Registry Number
O	2	17778-80-2
Co	1	7440-48-4
Li	1	7439-93-2

RN 14283-07-9 HCAPLUS

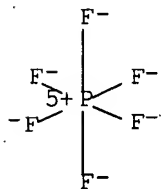
CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



● Li⁺

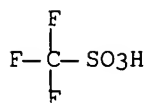
RN 21324-40-3 HCAPLUS

CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



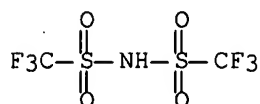
● Li⁺

RN 33454-82-9 HCAPLUS
 CN Methanesulfonic acid, 1,1,1-trifluoro-, lithium salt (1:1) (CA INDEX NAME)



● Li

RN 90076-65-6 HCAPLUS
 CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)

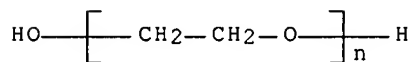


● Li

IT 9056-77-3DP, Polyethylene glycol methacrylate, reaction product with dipentaerythritol derivative and acrylic acid and butylcarboxylic acid 25852-47-5DP, Polyethylene glycol dimethacrylate, reaction product with dipentaerythritol derivative and acrylic acid and butylcarboxylic acid
 RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (polymer electrolyte with effective leakage resistance for lithium battery)
 RN 9056-77-3 HCAPLUS
 CN Poly(oxy-1,2-ethanediyl), α -hydro- ω -hydroxy-, 2-methyl-2-propenoate (CA INDEX NAME)

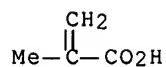
CM 1

CRN 25322-68-3
 CMF (C2 H4 O)_n H2 O
 CCI PMS



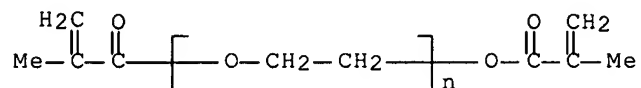
CM 2

CRN 79-41-4
 CMF C4 H6 O2



RN 25852-47-5 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), α -(2-methyl-1-oxo-2-propen-1-yl)- ω -[(2-methyl-1-oxo-2-propen-1-yl)oxy]- (CA INDEX NAME)



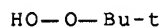
IT 75-91-2, tert-Butyl hydroperoxide 78-63-7, 2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane 78-67-1, Azobisisobutyronitrile 80-15-9, Cumene hydroperoxide 80-43-3, Dicumyl peroxide 94-36-0, Dibenzoyl peroxide, uses 105-64-6, Diisopropyl peroxydicarbonate 105-74-8, Dilauroyl peroxide 110-05-4, Di-tert-butyl peroxide 1561-49-5, Dicyclohexyl peroxy dicarbonate 1712-87-4, m-Toluoyl peroxide 2167-23-9, 2,2-Di-(tert-butylperoxy)butane 3025-88-5, 2,5-Dihydroperoxy-2,5-dimethylhexane 14666-78-5 15520-11-3, Bis(4-tert-butylcyclohexyl)peroxydicarbonate 16066-38-9, Di(n-propyl)peroxydicarbonate 16111-62-9, Di(2-ethylhexyl)peroxydicarbonate 19910-65-7, Di(sec-butyl)peroxydicarbonate 26748-47-0, α -Cumyl peroxyneodecanoate 32752-09-3, Isobutyl peroxide 52373-75-8 55794-20-2, Ethyl 3,3-di-(tert-butylperoxy)butyrate 92177-99-6, 3,3,5-Trimethylhexanoyl peroxide 95732-35-7

RL: CAT (Catalyst use); USES (Uses)

(polymerization initiator; polymer electrolyte with effective leakage resistance for lithium battery)

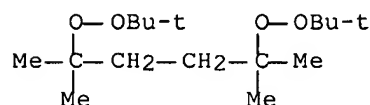
RN 75-91-2 HCAPLUS

CN Hydroperoxide, 1,1-dimethylethyl (CA INDEX NAME)



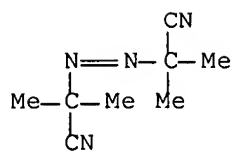
RN 78-63-7 HCAPLUS

CN Peroxide, 1,1'-(1,1,4,4-tetramethyl-1,4-butanediyl)bis[2-(1,1-dimethylethyl) (CA INDEX NAME)



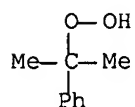
RN 78-67-1 HCAPLUS

CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)



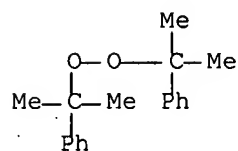
RN 80-15-9 HCAPLUS

CN Hydroperoxide, 1-methyl-1-phenylethyl (CA INDEX NAME)



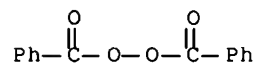
RN 80-43-3 HCAPLUS

CN Peroxide, bis(1-methyl-1-phenylethyl) (CA INDEX NAME)



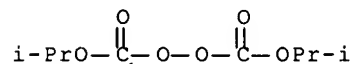
RN 94-36-0 HCAPLUS

CN Peroxide, dibenzoyl (CA INDEX NAME)



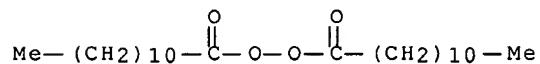
RN 105-64-6 HCAPLUS

CN Peroxydicarbonic acid, C,C'-bis(1-methylethyl) ester (CA INDEX NAME)

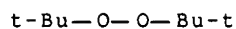


RN 105-74-8 HCAPLUS

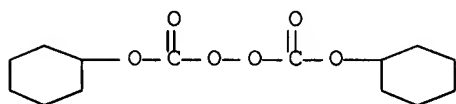
CN Peroxide, bis(1-oxododecyl) (CA INDEX NAME)



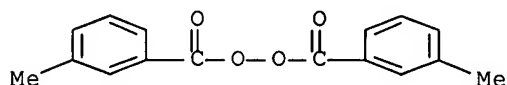
RN 110-05-4 HCAPLUS
 CN Peroxide, bis(1,1-dimethylethyl) (CA INDEX NAME)



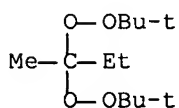
RN 1561-49-5 HCAPLUS
 CN Peroxydicarbonic acid, C,C'-dicyclohexyl ester (CA INDEX NAME)



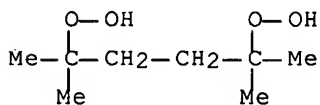
RN 1712-87-4 HCAPLUS
 CN Peroxide, bis(3-methylbenzoyl) (9CI) (CA INDEX NAME)



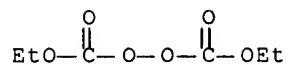
RN 2167-23-9 HCAPLUS
 CN Peroxide, 1,1'-(1-methylpropylidene)bis[2-(1,1-dimethylethyl) (CA INDEX NAME)



RN 3025-88-5 HCAPLUS
 CN Hydroperoxide, 1,1'-(1,1,4,4-tetramethyl-1,4-butanediyl)bis- (CA INDEX NAME)

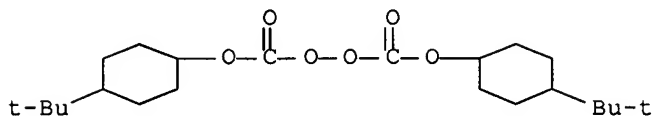


RN 14666-78-5 HCAPLUS
 CN Peroxydicarbonic acid, diethyl ester (CA INDEX NAME)



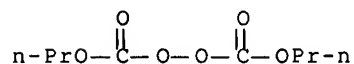
RN 15520-11-3 HCAPLUS

CN Peroxydicarbonic acid, C,C'-bis[4-(1,1-dimethylethyl)cyclohexyl] ester
(CA INDEX NAME)



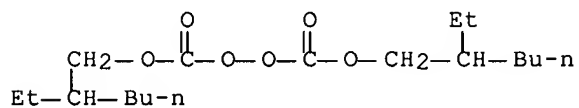
RN 16066-38-9 HCAPLUS

CN Peroxydicarbonic acid, C,C'-dipropyl ester (CA INDEX NAME)



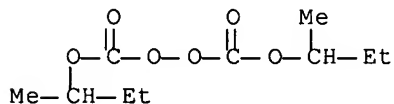
RN 16111-62-9 HCAPLUS

CN Peroxydicarbonic acid, C,C'-bis(2-ethylhexyl) ester (CA INDEX NAME)



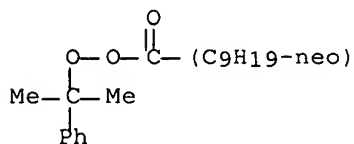
RN 19910-65-7 HCAPLUS

CN Peroxydicarbonic acid, C,C'-bis(1-methylpropyl) ester (CA INDEX NAME)

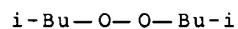


RN 26748-47-0 HCAPLUS

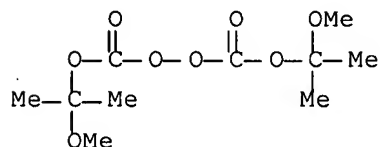
CN Neodecaneperoxoic acid, 1-methyl-1-phenylethyl ester (CA INDEX NAME)



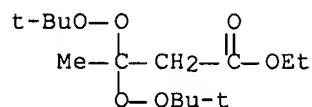
RN 32752-09-3 HCAPLUS
 CN Peroxide, bis(2-methylpropyl) (CA INDEX NAME)



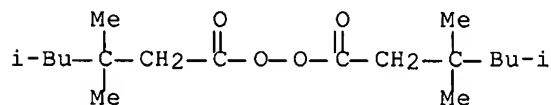
RN 52373-75-8 HCAPLUS
 CN Peroxydicarbonic acid, bis(1-methoxy-1-methylethyl) ester (9CI) (CA INDEX NAME)



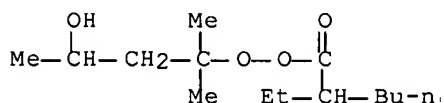
RN 55794-20-2 HCAPLUS
 CN Butanoic acid, 3,3-bis[(1,1-dimethylethyl)dioxy]-, ethyl ester (CA INDEX NAME)



RN 92177-99-6 HCAPLUS
 CN Peroxide, bis(3,3,5-trimethyl-1-oxohexyl) (9CI) (CA INDEX NAME)



RN 95732-35-7 HCAPLUS
 CN Hexaneperoxoic acid, 2-ethyl-, 3-hydroxy-1,1-dimethylbutyl ester (CA INDEX NAME)



RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon	2000			JP 2000311516	HCAPLUS
Jung	2003			US 20030157411 A1	HCAPLUS
Kojima	2001			US 6174626 B1	HCAPLUS

L135 ANSWER 10 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2003:796195 HCAPLUS Full-text

DN 139:294681

TI Electrolyte for lithium battery to reduce overcharge and improve electrochemical characteristics

IN Kim, Jun-Ho; Lee, Ha-Young; Choy, Sang-Hoon; Kim, Ho-Sung; Noh, Hyeong-Gon

PA Samsung SDI Co., Ltd., S. Korea

SO U.S. Pat. Appl. Publ., 19 pp.

CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003190529	A1	20031009	US 2003-393294	20030321 <--
	US 7205073	B2	20070417		
	KR 2003079310	A	20031010	KR 2002-18264	20020403 <--
	CN 1449070	A	20031015	CN 2003-108529	20030328 <--
	JP 2003297426	A	20031017	JP 2003-100349	20030403 <--
PRAI	KR 2002-18264	A	20020403	<--	

OS MARPAT 139:294681

AB An electrolyte for a lithium battery includes a nonaq. organic solvent, a lithium salt, and an additive comprising (a) a compound represented by the formula $[(R_1)_n C_6 H_{(6-n+m)} (X)_m]$, and (b) a compound selected from the group consisting of a sulfone-based compound, a poly(ester)(meth)acrylate, a polymer of poly(ester)(meth)acrylate, and a mixture thereof: wherein R_1 is a C1-10 alkyl, a C 1-10 alkoxy, or a C6-10 aryl, and preferably a Me, Et, or methoxy, X is a halogen, and m and n are integers ranging from 1 to 5, where $m+n$ is less than or equal to 6.

IC ICM H01M0006-18

INCL 429307000; 429309000; 429326000; 429322000; 429323000; 429330000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium battery electrolyte overcharge lowering

IT Battery electrolytes

(electrolyte for lithium battery to reduce overcharge and improve electrochem. characteristics)

IT Secondary batteries

(lithium; electrolyte for lithium battery to reduce overcharge and improve electrochem. characteristics)

IT Peroxides, uses

RL: MOA (Modifier or additive use); USES (Uses)

(organic; electrolyte for lithium battery to reduce overcharge and improve electrochem. characteristics)

IT Alcohols, uses

RL: MOA (Modifier or additive use); USES (Uses)

(trihydric; electrolyte for lithium battery to reduce overcharge and improve electrochem. characteristics)

IT 3087-37-4, Tetrapropyltitanate

RL: CAT (Catalyst use); USES (Uses)

(electrolyte for lithium battery to reduce overcharge and improve electrochem. characteristics)

IT 71-43-2, Benzene, uses 96-49-1, Ethylene carbonate 105-58-8,

Diethyl carbonate 108-32-7, Propylene carbonate 108-88-3, Toluene, uses 462-06-6, Fluorobenzene 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 623-96-1, Dipropyl carbonate 1330-20-7, Xylene, uses 4437-85-8, Butylene carbonate 7447-41-8, Lithium chloride (LiCl), uses 7791-03-9, Lithium perchlorate 10377-51-2, Lithium iodide (LiI) 12355-58-7, Lithium aluminate (Li₅AlO₄) 14283-07-9, Lithium tetrafluoroborate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 27359-10-0, Trifluorotoluene 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 35363-40-7, Ethyl propyl carbonate, uses 56525-42-9, Methyl propyl carbonate, uses 90076-65-6 131651-65-5, Lithium perfluorobutanesulfonate

RL: DEV (Device component use); USES (Uses)

(electrolyte for lithium battery to reduce overcharge and improve electrochem. characteristics)

IT 126-58-9DP, Dipentaerythritol, reaction product with ϵ -caprolactone 502-44-3DP, ϵ -Caprolactone, reaction product with dipentaerythritol 609772-45-4P

RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(electrolyte for lithium battery to reduce overcharge and improve electrochem. characteristics)

IT 56-81-5, Glycerol, uses 67-71-0, Methyl sulfone 77-77-0***, Vinyl sulfone 79-10-7D, Acrylic acid, ω -fatty acid esters C2-C21 79-41-4D, Methacrylic acid, ω -fatty acid esters C2-C21 94-36-0, Benzoyl peroxide, uses 104-92-7, 4-Bromoanisole 105-64-6, Diisopropyl peroxy dicarbonate 105-74-8, Lauroyl peroxide 126-33-0, Tetramethylene sulfone 127-63-9, Phenyl sulfone 149-32-6, Erythritol 452-10-8, 2,4-Difluoroanisole 456-49-5, 3-Fluoroanisole 459-60-9, 4-Fluoroanisole 620-32-6, Benzyl sulfone 623-12-1, 4-Chloroanisole 1561-49-5, Dicyclohexyl peroxy dicarbonate 1712-87-4, m-Toluoyl peroxide 2398-37-0, 3-Bromoanisole 2845-89-8, 3-Chloroanisole 3006-82-4, tert-Butylperoxy-2-ethylhexanoate 14666-78-5 15520-11-3, Bis(4-tert-butylcyclohexyl)peroxy dicarbonate 28452-93-9, Butadiene sulfone 32752-09-3, Isobutyl peroxide 92177-99-6, 3,3,5-Trimethylhexanoyl peroxide 93343-10-3, 3,5-Difluoroanisole 202925-08-4, 3-Chloro-5-fluoroanisole 609365-67-5

RL: MOA (Modifier or additive use); USES (Uses)

(electrolyte for lithium battery to reduce overcharge and improve electrochem. characteristics)

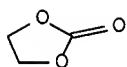
IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 7447-41-8, Lithium chloride (LiCl), uses 7791-03-9, Lithium perchlorate 10377-51-2, Lithium iodide (LiI) 12355-58-7, Lithium aluminate (Li₅AlO₄) 14283-07-9, Lithium tetrafluoroborate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 90076-65-6 131651-65-5, Lithium perfluorobutanesulfonate

RL: DEV (Device component use); USES (Uses)

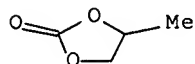
(electrolyte for lithium battery to reduce overcharge and improve electrochem. characteristics)

RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



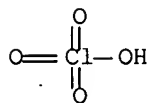
RN 108-32-7 HCAPLUS
 CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



RN 7447-41-8 HCAPLUS
 CN Lithium chloride (LiCl) (CA INDEX NAME)

Cl-Li

RN 7791-03-9 HCAPLUS
 CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)

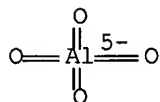


● Li

RN 10377-51-2 HCAPLUS
 CN Lithium iodide (LiI) (CA INDEX NAME)

I-Li

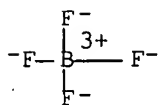
RN 12355-58-7 HCAPLUS
 CN Aluminate (AlO₄⁵⁻), pentalithium, (T-4)- (9CI) (CA INDEX NAME)



● 5 Li⁺

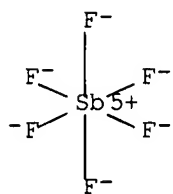
RN 14283-07-9 HCAPLUS

CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



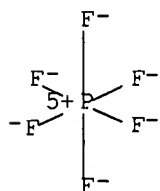
RN 18424-17-4 HCAPLUS

CN Antimonate(1-), hexafluoro-, lithium (1:1), (OC-6-11)- (CA INDEX NAME)



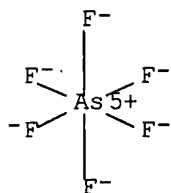
RN 21324-40-3 HCAPLUS

CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



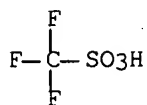
RN 29935-35-1 HCAPLUS

CN Arsenate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)

● Li⁺

RN 33454-82-9 HCAPLUS

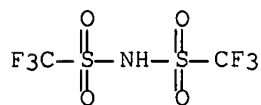
CN Methanesulfonic acid, 1,1,1-trifluoro-, lithium salt (1:1) (CA INDEX NAME)



● Li

RN 90076-65-6 HCAPLUS

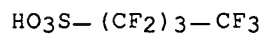
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



● Li

RN 131651-65-5 HCAPLUS

CN 1-Butanesulfonic acid, 1,1,2,2,3,3,4,4,4-nonafluoro-, lithium salt (1:1) (CA INDEX NAME)



● Li

IT 609772-45-4P

RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (electrolyte for lithium battery to reduce overcharge and improve electrochem. characteristics)

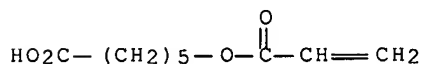
RN 609772-45-4 HCAPLUS

CN Hexanoic acid, 6-[(1-oxo-2-propenyl)oxy]-, tetraester with
2,2'-[oxybis(methylene)]bis[2-(hydroxymethyl)-1,3-propanediol] bis(butyl
carbonate) (9CI) (CA INDEX NAME)

CM 1

CRN 93365-33-4

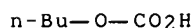
CMF C9 H14 O4



CM 2

CRN 10411-26-4

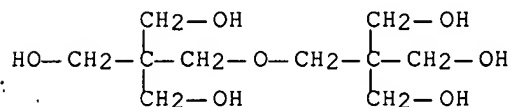
CMF C5 H10 O3



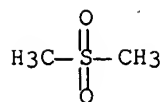
CM 3

CRN 126-58-9

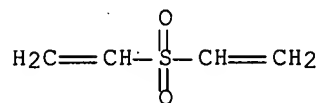
CMF C10 H22 O7



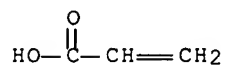
IT 67-71-0, Methyl sulfone 77-77-0, Vinyl sulfone
79-10-7D, Acrylic acid, ω-fatty acid esters C2-C21
79-41-4D, Methacrylic acid, ω-fatty acid esters
C2-C21 94-36-0, Benzoyl peroxide, uses 105-64-6,
Diisopropyl peroxy dicarbonate 105-74-8, Lauroyl peroxide
126-33-0, Tetramethylene sulfone 127-63-9, Phenyl
sulfone 620-32-6, Benzyl sulfone 1561-49-5,
Dicyclohexyl peroxy dicarbonate 1712-87-4, m-Toluoyl peroxide
3006-82-4, tert-Butylperoxy-2-ethyl-hexanoate 14666-78-5
15520-11-3, Bis(4-tert-butylcyclohexyl)peroxy dicarbonate
28452-93-9, Butadiene sulfone 32752-09-3, Isobutyl
peroxide 92177-99-6, 3,3,5-Trimethylhexanoyl peroxide
RL: MOA (Modifier or additive use); USES (Uses)
(electrolyte for lithium battery to reduce overcharge and
improve electrochem. characteristics)
RN 67-71-0 HCAPLUS
CN Methane, 1,1'-sulfonylbis- (CA INDEX NAME)



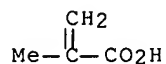
RN 77-77-0 HCAPLUS
 CN Ethene, 1,1'-sulfonylbis- (CA INDEX NAME)



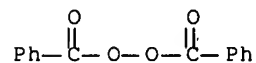
RN 79-10-7 HCAPLUS
 CN 2-Propenoic acid (CA INDEX NAME)



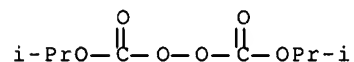
RN 79-41-4 HCAPLUS
 CN 2-Propenoic acid, 2-methyl- (CA INDEX NAME)



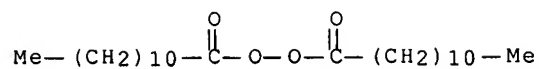
RN 94-36-0 HCAPLUS
 CN Peroxide, dibenzoyl (CA INDEX NAME)



RN 105-64-6 HCAPLUS
 CN Peroxydicarbonic acid, C,C'-bis(1-methylethyl) ester (CA INDEX NAME)

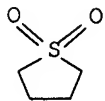


RN 105-74-8 HCAPLUS
 CN Peroxide, bis(1-oxododecyl) (CA INDEX NAME)



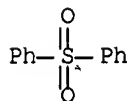
RN 126-33-0 HCAPLUS

CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



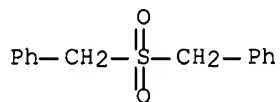
RN 127-63-9 HCAPLUS

CN Benzene, 1,1'-sulfonylbis- (CA INDEX NAME)



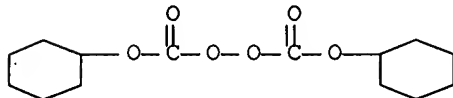
RN 620-32-6 HCAPLUS

CN Benzene, 1,1'-[sulfonylbis(methylene)]bis- (CA INDEX NAME)



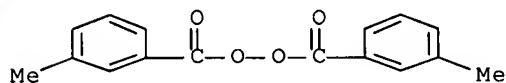
RN 1561-49-5 HCAPLUS

CN Peroxydicarbonic acid, C,C'-dicyclohexyl ester (CA INDEX NAME)



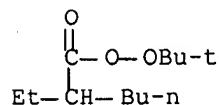
RN 1712-87-4 HCAPLUS

CN Peroxide, bis(3-methylbenzoyl) (9CI) (CA INDEX NAME)



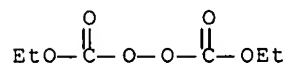
RN 3006-82-4 HCAPLUS

CN Hexaneperoxoic acid, 2-ethyl-, 1,1-dimethylethyl ester (CA INDEX NAME)



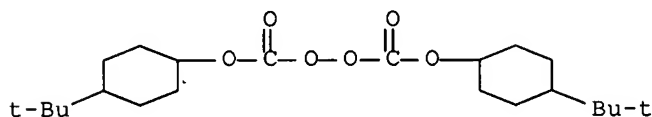
RN 14666-78-5 HCAPLUS

CN Peroxydicarbonic acid, diethyl ester (CA INDEX NAME)



RN 15520-11-3 HCAPLUS

CN Peroxydicarbonic acid, C,C'-bis[4-(1,1-dimethylethyl)cyclohexyl] ester (CA INDEX NAME)



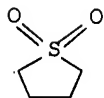
RN 28452-93-9 HCAPLUS

CN Thiophene, dihydro-, 1,1-dioxide (CA INDEX NAME)

CM 1

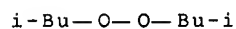
CRN 126-33-0

CMF C4 H8 O2 S



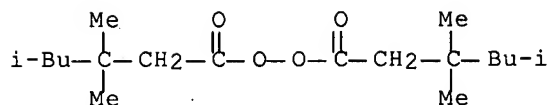
RN 32752-09-3 HCAPLUS

CN Peroxide, bis(2-methylpropyl) (CA INDEX NAME)



RN 92177-99-6 HCAPLUS

CN Peroxide, bis(3,3,5-trimethyl-1-oxohexyl) (9CI) (CA INDEX NAME)



L135 ANSWER 11 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2003:437556 HCAPLUS Full-text

DN 139:263214

TI Silicone as a binder in composite electrolytes

AU Inada, Taro; Takada, Kazunori; Kajiyama, Akihisa; Sasaki, Hideki; Kondo, Shigeo; Watanabe, Mamoru; Murayama, Masahiro; Kanno, Ryoji

CS Advanced Materials Laboratory, National Institute for Materials Science, Tsukuba, Ibaraki, 305-0044, Japan

SO Journal of Power Sources (2003), 119-121, 948-950

CODEN: JPSODZ; ISSN: 0378-7753

PB Elsevier Science B.V.

DT Journal

LA English

AB A liquid silicone was used as a binder to make composite solid electrolytes from lithium-ion conductive inorg. solid electrolytes (ISEs): an oxysulfide glass, 0.01 Li₃PO₄- 0.63 Li₂S- 0.36 SiS₂ and/or a lithium germanium thio-phosphate, Li_{3.25}Ge_{0.25}P_{0.75}S₄. Ionic conductivities of the composites were of the order of 10⁻⁴ Scm⁻¹, even when the silicone was enriched to 10% (volume/volume). However, the composite with styrene-butadiene block co-polymer (SBR) or polypropylene oxide-polyethylene oxide (PO-EO) co-polymer as binder showed much lower conductivity. In the composite electrolyte, the silicone rubber must partly cover the surface of the ISE particles because the composite electrolyte is molded before the vulcanization of the fluid liquid silicone; and thus, it must rarely interfere with the conduction between the ISE particles. Hydrocarbons are suitable in the preparation process of the composite solid electrolyte (CSE).

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 36, 38, 76

ST silicone rubber binder composite electrolyte SBR polyoxyalkylene solid battery; ionic cond lithium ion germanium phosphate sulfide thiosulfide glass

IT Battery electrolytes

Binders

Polymer electrolytes

(effect of silicone rubber as binder in composite electrolytes)

IT 25852-47-5P

RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(effect of silicone rubber as binder in composite electrolytes)

IT 94-36-0, Benzoyl peroxide, uses

RL: CAT (Catalyst use); USES (Uses)

(effect of solvent pretreatment on ionic conductivity of Li⁺-conducting glasses)

IT 64-17-5, Ethanol, uses 67-64-1, Acetone, uses 75-05-8,

Acetonitrile, uses 108-88-3, Toluene, uses 142-82-5, n-Heptane, uses

RL: NUU (Other use, unclassified); USES (Uses)

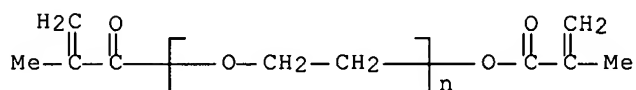
(effect of solvent pretreatment on ionic conductivity of Li⁺-conducting glasses)

IT 55326-82-4, Lithium titanium sulfide (LiTiS₂)

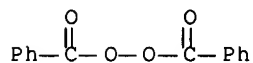
RL: DEV (Device component use); USES (Uses)

(electrode; effect of solvent pretreatment on ionic conductivity of Li+-conducting glasses)

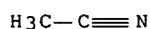
- IT 10377-52-3P, Lithium phosphate (Li₃PO₄) 12136-58-2P, Lithium sulfide (Li₂S) 13759-10-9P, Silicon sulfide (SiS₂)
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); USES (Uses)
 (glass, phosphate sulfide, electrolyte composite with silicone rubber, CP-2000, or SBR; effect of silicone rubber as binder in composite electrolytes)
- IT 361393-39-7
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (glass, thiophosphate sulfide (thio-LISICON), electrolyte composite with silicone rubber, CP-2000, or SBR; effect of silicone rubber as binder in composite electrolytes)
- IT 25852-47-5P
 RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (effect of silicone rubber as binder in composite electrolytes)
- RN 25852-47-5 HCAPLUS
- CN Poly(oxy-1,2-ethanediyl), α-(2-methyl-1-oxo-2-propen-1-yl)-ω-[(2-methyl-1-oxo-2-propen-1-yl)oxy]- (CA INDEX NAME)



- IT 94-36-0, Benzoyl peroxide, uses
 RL: CAT (Catalyst use); USES (Uses)
 (effect of solvent pretreatment on ionic conductivity of Li+-conducting glasses)
- RN 94-36-0 HCAPLUS
- CN Peroxide, dibenzoyl (CA INDEX NAME)



- IT 75-05-8, Acetonitrile, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (effect of solvent pretreatment on ionic conductivity of Li+-conducting glasses)
- RN 75-05-8 HCAPLUS
- CN Acetonitrile (CA INDEX NAME)

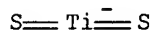


- IT 55326-82-4, Lithium titanium sulfide (LiTiS₂)
 RL: DEV (Device component use); USES (Uses)
 (electrode; effect of solvent pretreatment on ionic conductivity of

Li+-conducting glasses)

RN 55326-82-4 HCAPLUS

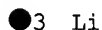
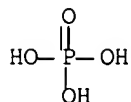
CN Titanate(1-), dithioxo-, lithium (9CI) (CA INDEX NAME)



IT 10377-52-3P, Lithium phosphate (Li3PO4) 12136-58-2P,
Lithium sulfide (Li2S) 13759-10-9P, Silicon sulfide (SiS2)
RL: DEV (Device component use); PEP (Physical, engineering or chemical
process); PRP (Properties); PYP (Physical process); SPN (Synthetic
preparation); PREP (Preparation); PROC (Process); USES (Uses)
(glass, phosphate sulfide, electrolyte composite with silicone rubber,
CP-2000, or SBR; effect of silicone rubber as binder in composite
electrolytes)

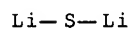
RN 10377-52-3 HCAPLUS

CN Phosphoric acid, lithium salt (1:3) (CA INDEX NAME)



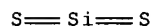
RN 12136-58-2 HCAPLUS

CN Lithium sulfide (Li2S) (CA INDEX NAME)



RN 13759-10-9 HCAPLUS

CN Silicon sulfide (SiS2) (CA INDEX NAME)



IT 361393-39-7

RL: DEV (Device component use); TEM (Technical or engineered material
use); USES (Uses)

(glass, thiophosphate sulfide (thio-LISICON), electrolyte composite
with silicone rubber, CP-2000, or SBR; effect of silicone rubber as
binder in composite electrolytes)

RN 361393-39-7 HCAPLUS

CN Germanium lithium phosphorotetrathioate sulfide (Ge0.25Li3.25(PS4)0.75S)
(9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
PS4	0.75	22383-48-8
S	1	7704-34-9
Ge	0.25	7440-56-4
Li	3.25	7439-93-2

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Angell, C	1993	632	137	Nature	
Aotani, N	1994	68	35	Solid State Ion	HCAPLUS
Chalk, A	1965	87	16	J Am Chem Soc	HCAPLUS
Hirai, K	1996	79	349	J Am Ceram Soc	HCAPLUS
Inada, T	2001		250	Proceedings of the 21	
Inada, T	2003	158	275	Solid State Ion	HCAPLUS
Kanno, R	2001	148	A742	J Electrochem Soc	HCAPLUS
Kennedy, J	1986	133	2437	J Electrochem Soc	HCAPLUS
Kennedy, J	1987	69	252	J Solid State Chem	HCAPLUS
Kennedy, J	1988	28-30	726	Solid State Ion	
Mercier, R	1981	5	663	Solid State Ion	HCAPLUS
Pine, S	1987		99	Organic Chemistry, f	
Speier, J	1957	79	974	J Am Chem Soc	HCAPLUS
Wada, H	1983	18	189	Mater Res Bull	HCAPLUS
Whittingham, M	1978	12	41	Prog Solid State Che	HCAPLUS

L135 ANSWER 12 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2003:437468 HCAPLUS Full-text

DN 139:278951

TI Electrochemical properties of poly(tetra ethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries

AU Kim, Hyun-Soo; Shin, Jung-Han; Moon, Seong-In; Yun, Mun-Soo

CS Battery Research Group, Korea Electrotechnology Research Institute, Changwon, 641-120, S. Korea

SO Journal of Power Sources (2003), 119-121, 482-486

CODEN: JPSODZ; ISSN: 0378-7753

PB Elsevier Science B.V.

DT Journal

LA English

AB The precursor for a gel polymer electrolyte (GPE) consisted of tetra (ethylene glycol) diacrylate monomer, benzoyl peroxide, and 1.1M LiPF₆/EC:PC:EMC:DEC (30:20:30:20%). LiCoO₂/graphite cells were prepared and their electrochem. properties were evaluated at various current densities and temps. The viscosity of the precursor containing 5 volume% tetra (ethylene glycol) diacrylate monomer was .apprx.4.6 mPa s. The ionic conductivity of the gel polymer electrolyte at 20° was .apprx.6.34 + 10⁻³ S cm⁻¹. The gel polymer electrolyte had good electrochem. stability up to 4.5 V vs. Li/Li⁺. The capacity of the cell at 2.0 C rate was 74% of the discharge capacity at 0.2 C rate. The capacity of the cell at -10° was 81% of the discharge capacity at temperature of 20°. Discharge capacity of the cell with gel polymer electrolyte was stable with charge-discharge cycling.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 35, 38, 76

ST poly tetraethylene glycol diacrylate polymer gel electrolyte lithium ion; polymer secondary battery electrolyte carbonate discharge capacity cyclic

voltammetry

IT Carbon fibers, uses

RL: DEV (Device component use); USES (Uses)

(MCF, carbon fiber composite electrode with PVDF; electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)

IT Fluoropolymers, uses

RL: DEV (Device component use); USES (Uses)

(composite electrodes with LiCoO₂/Super P or MCF carbon fibers; electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)

IT Battery electrolytes

Cyclic voltammetry

Electric impedance

Gels

Polymer electrolytes

(electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)

IT Secondary batteries

(lithium; electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)

IT Ionic conductivity

(of gel polymer electrolytes; electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)

IT Viscosity

(of monomer/electrolyte solns.; electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)

IT Polymerization

(radical; electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)

IT 7440-44-0, Super P, uses

RL: DEV (Device component use); USES (Uses)

(activated, composite electrode with LiCoO₂/PVDF; electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)

IT 12190-79-3, Lithium cobalt oxide (LiCoO₂)

RL: DEV (Device component use); USES (Uses)

(composite electrode with PVDF/Super P; electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)

IT 7782-42-5, Graphite, uses

RL: DEV (Device component use); USES (Uses)

(composite electrode; electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)

IT 24937-79-9, PVDF

RL: DEV (Device component use); USES (Uses)

(composite electrodes with LiCoO₂/Super P or MCF carbon fibers; electrochem. properties of poly(tetraethylene glycol diacrylate)

-) -based gel electrolytes for lithium-ion polymer batteries)
- IT 94-36-0, Benzoyl peroxide, uses
 RL: CAT (Catalyst use); USES (Uses)
 (electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)
- IT 7429-90-5, Aluminum, uses 7439-93-2, Lithium, uses 12597-68-1, Stainless steel, uses
 RL: DEV (Device component use); USES (Uses)
 (electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)
- IT 17831-71-9, Tetra (ethylene glycol) diacrylate
 RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
 (electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)
- IT 57619-91-7P, Tetraethylene glycol diacrylate homopolymer
 RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (gel polymer electrolyte with LiPF6/carbonate solvents; electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)
- IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 623-53-0, Ethyl methyl carbonate
 RL: DEV (Device component use); USES (Uses)
 (polymer electrolyte gel with poly(TEGDA)/LiPF6/carbonate solvents; electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)
- IT 21324-40-3, Lithium hexafluorophosphate (LiPF6)
 RL: DEV (Device component use); USES (Uses)
 (polymer electrolyte gel with poly(TEGDA)/carbonate solvents; electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)
- IT 25085-53-4, Celgard 2500
 RL: DEV (Device component use); USES (Uses)
 (separator; electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)
- IT 7440-44-0, Super P, uses
 RL: DEV (Device component use); USES (Uses)
 (activated, composite electrode with LiCoO2/PVDF; electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)
- RN 7440-44-0 HCAPLUS
 CN Carbon (CA INDEX NAME)

C

- IT 12190-79-3, Lithium cobalt oxide (LiCoO2)

RL: DEV (Device component use); USES (Uses)
 (composite electrode with PVDF/Super P; electrochem. properties of
 poly(tetraethylene glycol diacrylate)-based gel
 electrolytes for lithium-ion polymer
 batteries)

RN 12190-79-3 HCAPLUS

CN Cobalt lithium oxide (CoLiO2) (CA INDEX NAME)

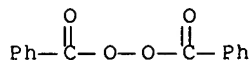
Component	Ratio	Component Registry Number
O	2	17778-80-2
Co	1	7440-48-4
Li	1	7439-93-2

IT 94-36-0, Benzoyl peroxide, uses

RL: CAT (Catalyst use); USES (Uses)
 (electrochem. properties of poly(tetraethylene glycol
 diacrylate)-based gel electrolytes for lithium-ion
 polymer batteries)

RN 94-36-0 HCAPLUS

CN Peroxide, dibenzoyl (CA INDEX NAME)



IT 7439-93-2, Lithium, uses

RL: DEV (Device component use); USES (Uses)
 (electrochem. properties of poly(tetraethylene glycol
 diacrylate)-based gel electrolytes for lithium-ion
 polymer batteries)

RN 7439-93-2 HCAPLUS

CN Lithium (CA INDEX NAME)

Li

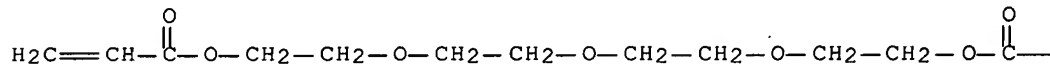
IT 17831-71-9, Tetra (ethylene glycol) diacrylate

RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
 (electrochem. properties of poly(tetraethylene glycol
 diacrylate)-based gel electrolytes for lithium-ion
 polymer batteries)

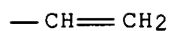
RN 17831-71-9 HCAPLUS

CN 2-Propenoic acid, 1,1'-[oxybis(2,1-ethanedioxy-2,1-ethanediyl)] ester
 (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



IT 57619-91-7P, Tetraethylene glycol diacrylate
homopolymer
RL: DEV (Device component use); SPN (Synthetic preparation); PREP
(Preparation); USES (Uses)
(gel polymer electrolyte with LiPF₆/carbonate
solvents; electrochem. properties of poly(tetraethylene glycol
diacrylate)-based gel electrolytes for lithium-ion
polymer batteries)

RN 57619-91-7 HCAPLUS

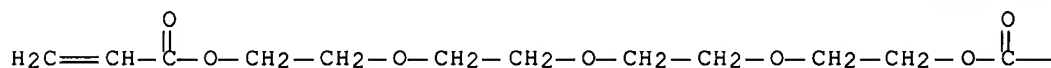
CN 2-Propenoic acid, 1,1'-[oxybis(2,1-ethanediyl)oxy-2,1-ethanediyl] ester,
homopolymer (CA INDEX NAME)

CM 1

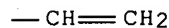
CRN 17831-71-9

CMF C14 H22 O7

PAGE 1-A



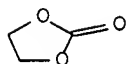
PAGE 1-B



IT 96-49-1, Ethylene carbonate 108-32-7, Propylene
carbonate
RL: DEV (Device component use); USES (Uses)
(polymer electrolyte gel with
poly(TEGDA)/LiPF₆/carbonate solvents; electrochem. properties
of poly(tetraethylene glycol diacrylate)-based gel
electrolytes for lithium-ion polymer
batteries)

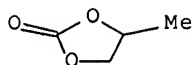
RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)

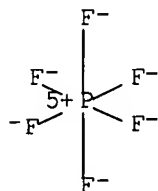


RN 108-32-7 HCAPLUS

CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



IT 21324-40-3, Lithium hexafluorophosphate (LiPF₆)
 RL: DEV (Device component use); USES (Uses)
 (polymer electrolyte gel with poly(TEGDA)/carbonate
 solvents; electrochem. properties of poly(tetraethylene glycol
 diacrylate)-based gel electrolytes for lithium-ion
 polymer batteries)
 RN 21324-40-3 HCAPLUS
 CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



● Li⁺

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Abraham, K	1990	137	L1657	J Electrochem Soc	
Alamgir, M	1993	140	L96	J Electrochem Soc	HCAPLUS
Arcella, V	1999	81-82	790	J Power Sources	HCAPLUS
Boudin, F	1999	81-82	804	J Power Sources	HCAPLUS
Dias, F	2000	88	169	J Power Sources	HCAPLUS
Fong, R	1990	137	2009	J Electrochem Soc	HCAPLUS
Huang, H	2001	148	A279	J Electrochem Soc	HCAPLUS
Kim, D	2000	87	78	J Power Sources	HCAPLUS
Kono, M	1999	146	1626	J Electrochem Soc	HCAPLUS
Levi, M	1999	146	1279	J Electrochem Soc	HCAPLUS
Quartarone, E	1998	43	1435	Electrochim Acta	HCAPLUS
Rarascon, J	1991	138	2864	J Electrochem Soc	
Scrosati, B	2000	147	1718	J Electrochem Soc	HCAPLUS
Wang, H	2000	147	2853	J Electrochem Soc	HCAPLUS

L135 ANSWER 13 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2003:435148 HCAPLUS Full-text

DN 138:388239

TI In situ thermal polymerization method for making gel polymer lithium ion
 rechargeable electrochemical cells

IN Xing, Weibing; Takeuchi, Esther S.

PA USA

SO U.S. Pat. Appl. Publ., 9 pp.

CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

PATENT NO.

KIND

DATE

APPLICATION NO.

DATE

PI US 2003104282 A1 20030605 US 2001-883 20011115 <--

PRAI US 2001-883 20011115 <--

AB A single step, in situ curing method for making gel polymer lithium ion rechargeable cells and batteries is disclosed. This method used a precursor solution consisting of monomers with multiple functionalities such as multiple acryloyl functionalities, a free-radical generating activator, nonaq. solvents such as ethylene carbonate and propylene carbonate, and a lithium salt such as LiPF₆. The electrodes are prepared by slurry-coating a carbonaceous material such as graphite onto an anode current collector and a lithium transition metal oxide such as LiCoO₂ onto a cathode current collector, resp. The electrodes, together with a highly porous separator, are then soaked with the polymer electrolyte precursor solution and sealed in a cell package under vacuum. The whole cell package is heated to in situ cure the polymer electrolyte precursor. The resulting lithium ion rechargeable cells with gelled polymer electrolyte demonstrate excellent electrochem. properties such as high efficiency in material utilization, high Coulombic efficiency, good rate capability, and good cyclability.

IC ICM H01M0010-40
ICS H01M0004-58; H01M0004-66

INCL 429303000; 429189000; 429231800; 429245000; 429231100; 029623100

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

ST lithium battery gel polymer electrolyte in situ thermal polymn

IT Battery electrolytes
(in-situ thermal polymerization method for making gel polymer lithium ion rechargeable electrochem. cells)

IT Carbon black, uses
Coke
RL: DEV (Device component use)
(in-situ thermal polymerization method for making gel polymer lithium ion rechargeable electrochem. cells)

IT Secondary batteries
(lithium; in-situ thermal polymerization method for making gel polymer lithium ion rechargeable electrochem. cells)

IT Polymerization
(thermal; in-situ thermal polymerization method for making gel polymer lithium ion rechargeable electrochem. cells)

IT 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses 7440-06-4, Platinum, uses 7440-25-7, Tantalum, uses 7440-32-6, Titanium, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 11101-13-6 12597-68-1, Stainless steel, uses
RL: DEV (Device component use)
(anode current collector; in-situ thermal polymerization method for making gel polymer lithium ion rechargeable electrochem. cells)

IT 7440-44-0, Carbon, uses
RL: DEV (Device component use)
(glassy; in-situ thermal polymerization method for making gel polymer lithium ion rechargeable electrochem. cells)

IT 94-36-0, Benzoyl peroxide, processes 105-74-8, Lauroyl peroxide 2094-98-6, 1,1'-Azobis(cyclohexanecarbonitrile) 2638-94-0, 4,4'-Azobis(4-cyanovaleric acid) 3006-86-8, 1,1-Bis(tert-

butylperoxy)cyclohexane 15667-10-4, 1,1-Bis(tert-amylperoxy)cyclohexane
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical
 process); PROC (Process)

(in-situ thermal polymerization method for making gel polymer lithium ion
 rechargeable electrochem. cells)

IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene
 carbonate 108-32-7, Propylene carbonate 556-65-0,
 Lithium thiocyanate 685-91-6, n,n-Diethylacetamide 1313-13-9,
 Manganese dioxide, uses 1313-99-1, Nickel oxide (NiO), uses 1314-62-1,
 Vanadia, uses 1317-37-9, Iron sulfide (FeS) 1332-37-2, Iron
 oxide, uses 1344-70-3, Copper oxide 2923-17-3 4437-85-8,
 Butylene carbonate 7782-42-5, Graphite, uses 7784-01-2, Silver
 chromate 7789-19-7, Copperfluoride (CuF₂) 7791-03-9, Lithium
 perchlorate 11098-99-0, Molybdenum oxide 11099-11-9, Vanadium oxide
 11104-61-3, Cobalt oxide 11105-02-5, Silver vanadium oxide
 11113-75-0, Nickel sulfide 11115-76-7, Cobalt selenide
 11115-77-8, Cobalt telluride 11115-78-9, Copper sulfide
 11115-99-4, Nickel selenide 11116-00-0, Nickel telluride 11118-57-3,
 Chromium oxide 11126-12-8, Iron sulfide 11129-60-5, Manganese
 oxide 11130-24-8, Vanadium sulfide 12031-65-1, Lithium
 nickel oxide (LiNiO₂) 12039-13-3, Titanium sulfide (TiS₂)
 12057-17-9, Lithium manganese oxide (LiMn₂O₄) 12057-24-8
 , Lithia, uses 12068-85-8, Iron sulfide (FeS₂)
 12162-79-7, Lithium manganese oxide (LiMnO₂) 12162-92-4,
 Lithium vanadium oxide (LiV₂O₅) 12190-79-3, Cobalt lithium oxide
 (CoLiO₂) 12612-50-9, Molybdenum sulfide 12623-97-1,
 Chromium sulfide 12627-00-8, Niobium oxide 12653-56-4, Cobalt
 sulfide 12673-92-6, Titanium sulfide 12687-82-0,
 Manganese sulfide 12789-09-2, Copper vanadium oxide 12795-09-4, Copper
 telluride 13453-75-3 13463-67-7, Titanium oxide, uses
 14024-11-4, Lithium tetrachloroaluminate 14283-07-9,
 Lithium tetrafluoroborate 14485-20-2, Lithium tetraphenylborate
 15955-98-3, Lithium tetrachlorogallate 18424-17-4,
 Lithium hexafluoroantimonate 20667-12-3, Silver oxide (Ag₂O)
 21324-40-3, Lithium hexafluorophosphate 22205-45-4,
 Copper sulfide (Cu₂S) 29935-35-1, Lithium hexafluoroarsenate
 33454-82-9, Lithium triflate 35363-40-7, Ethyl propyl carbonate
 37320-90-4, Manganese selenide 37359-15-2, Copper selenide
 39290-91-0, Niobium sulfide 39361-71-2, Titanium telluride
 50808-87-2, Molybdenum telluride 50814-22-7, Chromium telluride
 50926-12-0, Iron selenide 50926-13-1, Iron telluride 51311-17-2,
 Carbon fluoride 54183-54-9, Molybdenum selenide 54427-25-7, Vanadium
 telluride 58319-81-6, Manganese telluride 64176-75-6, Niobium selenide
 66675-50-1, Titanium selenide 66675-60-3, Chromium selenide
 90076-65-6 115028-88-1 131344-56-4, Cobalt
 lithium nickel oxide 132404-42-3 135751-98-3, Vanadium
 selenide 162124-03-0, Niobium telluride 181183-66-4, Copper Silver
 vanadium oxide 188029-35-8, Lithium titanium oxide (Li₄-7Ti₅O₁₂)
 423734-10-5, Cobalt lithium nitride (Co_{0.1}-0.6Li_{2.4}-2.9N)
 423734-14-9, Lithium nickel nitride (Li_{2.4}-2.9Ni_{0.1}-0.6N)
 527698-30-2, Copper lithium tin oxide (Cu_{0.92}LiSn_{0.08}O₂)
 RL: DEV (Device component use)

(in-situ thermal polymerization method for making gel polymer lithium ion
 rechargeable electrochem. cells)

IT 26426-04-0P, Trimethylolpropane trimethacrylate
 homopolymer 57592-66-2P, Pentaerythritol tetraacrylate
 homopolymer 57592-67-3P, Hexanediol diacrylate
 homopolymer 64401-02-1P, Bisphenol A-ethylene oxide adduct
 diacrylate 67653-78-5P, Dipentaerythritol
 hexaacrylate homopolymer 82200-28-0P, Dipentaerythritol

pentaacrylate homopolymer 85887-85-0P, Ethoxylated
trimethylolpropane triacrylate homopolymer 103315-68-0P
, Di(trimethylolpropane)tetraacrylate homopolymer
117223-60-6P

RL: DEV (Device component use); SPN (Synthetic preparation); PREP
(Preparation)

(in-situ thermal polymerization method for making gel polymer lithium ion
rechargeable electrochem. cells)

IT 7440-44-0, Carbon, uses

RL: DEV (Device component use)

(glassy; in-situ thermal polymerization method for making gel polymer

lithium

ion rechargeable electrochem. cells)

RN 7440-44-0 HCAPLUS

CN Carbon (CA INDEX NAME)

C

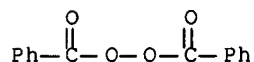
IT 94-36-0, Benzoyl peroxide, processes 105-74-8, Lauroyl
peroxide

RL: CPS (Chemical process); PEP (Physical, engineering or chemical
process); PROC (Process)

(in-situ thermal polymerization method for making gel polymer lithium ion
rechargeable electrochem. cells)

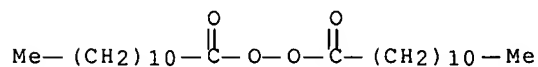
RN 94-36-0 HCAPLUS

CN Peroxide, dibenzoyl (CA INDEX NAME)



RN 105-74-8 HCAPLUS

CN Peroxide, bis(1-oxododecyl) (CA INDEX NAME)



IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene
carbonate 108-32-7, Propylene carbonate 556-65-0,
Lithium thiocyanate 1317-37-9, Iron sulfide (FeS)
2923-17-3 7791-03-9, Lithium perchlorate
11113-75-0, Nickel sulfide 11115-78-9, Copper sulfide
11126-12-8, Iron sulfide 11130-24-8, Vanadium sulfide
12031-65-1, Lithium nickel oxide (LiNiO₂) 12039-13-3,
Titanium sulfide (TiS₂) 12057-17-9, Lithium manganese oxide
(LiMn₂O₄) 12057-24-8, Lithia, uses 12068-85-8, Iron
sulfide (FeS₂) 12162-79-7, Lithium manganese oxide (LiMnO₂)
12162-92-4, Lithium vanadium oxide (LiV₂O₅) 12190-79-3,
Cobalt lithium oxide (CoLiO₂) 12612-50-9, Molybdenum sulfide
12623-97-1, Chromium sulfide 12653-56-4, Cobalt sulfide
12673-92-6, Titanium sulfide 12687-82-0, Manganese

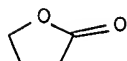
sulfide 13453-75-3 14024-11-4, Lithium
 tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate
 14485-20-2, Lithium tetraphenylborate 15955-98-3,
 Lithium tetrachlorogallate 18424-17-4, Lithium
 hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate
 22205-45-4, Copper sulfide (Cu₂S) 29935-35-1, Lithium
 hexafluoroarsenate 33454-82-9, Lithium triflate
 39290-91-0, Niobium sulfide 90076-65-6
 115028-88-1 131344-56-4, Cobalt lithium nickel oxide
 132404-42-3 188029-35-8, Lithium titanium oxide
 (Li₄-7Ti₅O₁₂) 423734-10-5, Cobalt lithium nitride
 (Co_{0.1}-0.6Li_{2.4}-2.9N) 423734-14-9, Lithium nickel nitride
 (Li_{2.4}-2.9Ni_{0.1}-0.6N) 527698-30-2, Copper lithium tin oxide
 (Cu_{0.92}LiSn_{0.08}O₂)

RL: DEV (Device component use)

(in-situ thermal polymerization method for making gel polymer lithium ion
 rechargeable electrochem. cells)

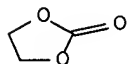
RN 96-48-0 HCAPLUS

CN 2(3H)-Furanone, dihydro- (CA INDEX NAME)



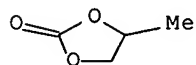
RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



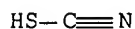
RN 108-32-7 HCAPLUS

CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



RN 556-65-0 HCAPLUS

CN Thiocyanic acid, lithium salt (1:1) (CA INDEX NAME)



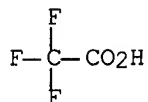
RN 1317-37-9 HCAPLUS

CN Iron sulfide (FeS) (CA INDEX NAME)

Fe==S

RN 2923-17-3 HCAPLUS

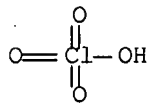
CN Acetic acid, 2,2,2-trifluoro-, lithium salt (1:1) (CA INDEX NAME)



● Li

RN 7791-03-9 HCAPLUS

CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)



● Li

RN 11113-75-0 HCAPLUS

CN Nickel sulfide (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	x	7704-34-9
Ni	x	7440-02-0

RN 11115-78-9 HCAPLUS

CN Copper sulfide (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE

RN 11126-12-8 HCAPLUS

CN Iron sulfide (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 11130-24-8 HCAPLUS

CN Vanadium sulfide (CA INDEX NAME)

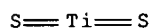
Component	Ratio	Component Registry Number
S	x	7704-34-9
V	x	7440-62-2

RN 12031-65-1 HCAPLUS

CN Lithium nickel oxide (LiNiO₂) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Ni	1	7440-02-0
Li	1	7439-93-2

RN 12039-13-3 HCAPLUS

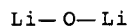
CN Titanium sulfide (TiS₂) (CA INDEX NAME)

RN 12057-17-9 HCAPLUS

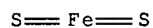
CN Lithium manganese oxide (LiMn₂O₄) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	4	17778-80-2
Mn	2	7439-96-5
Li	1	7439-93-2

RN 12057-24-8 HCAPLUS

CN Lithium oxide (Li₂O) (CA INDEX NAME)

RN 12068-85-8 HCAPLUS

CN Iron sulfide (FeS₂) (CA INDEX NAME)

RN 12162-79-7 HCAPLUS

CN Manganate (MnO₂⁻), lithium (9CI) (CA INDEX NAME)

RN 12162-92-4 HCAPLUS

CN Lithium vanadium oxide (LiV₂O₅) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	5	17778-80-2

V | 2 | 7440-62-2
 Li | 1 | 7439-93-2

RN 12190-79-3 HCAPLUS

CN Cobalt lithium oxide (CoLiO₂) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Co	1	7440-48-4
Li	1	7439-93-2

RN 12612-50-9 HCAPLUS

CN Molybdenum sulfide (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	x	7704-34-9
Mo	x	7439-98-7

RN 12623-97-1 HCAPLUS

CN Chromium sulfide (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	x	7704-34-9
Cr	x	7440-47-3

RN 12653-56-4 HCAPLUS

CN Cobalt sulfide (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 12673-92-6 HCAPLUS

CN Titanium sulfide (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	x	7704-34-9
Ti	x	7440-32-6

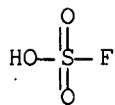
RN 12687-82-0 HCAPLUS

CN Manganese sulfide (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	x	7704-34-9
Mn	x	7439-96-5

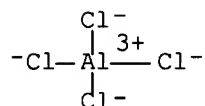
RN 13453-75-3 HCAPLUS

CN Fluorosulfuric acid, lithium salt (8CI, 9CI) (CA INDEX NAME)



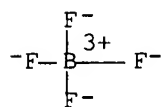
RN 14024-11-4 HCAPLUS

CN Aluminate(1-), tetrachloro-, lithium (1:1), (T-4)- (CA INDEX NAME)



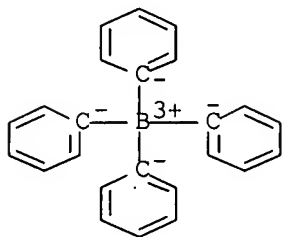
RN 14283-07-9 HCAPLUS

CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



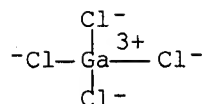
RN 14485-20-2 HCAPLUS

CN Borate(1-), tetraphenyl-, lithium (1:1) (CA INDEX NAME)



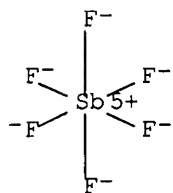
RN 15955-98-3 HCAPLUS

CN Gallate(1-), tetrachloro-, lithium, (T-4)- (9CI) (CA INDEX NAME)



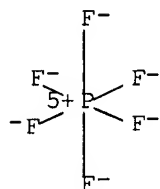
RN 18424-17-4 HCAPLUS

CN Antimonate(1-), hexafluoro-, lithium (1:1), (OC-6-11)- (CA INDEX NAME)



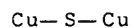
RN 21324-40-3 HCAPLUS

CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



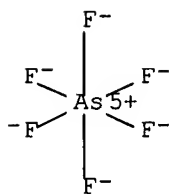
RN 22205-45-4 HCAPLUS

CN Copper sulfide (Cu_2S) (CA INDEX NAME)



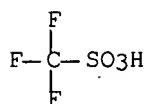
RN 29935-35-1 HCAPLUS

CN Arsenate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)

● Li⁺

RN 33454-82-9 HCAPLUS

CN Methanesulfonic acid, 1,1,1-trifluoro-, lithium salt (1:1) (CA INDEX NAME)



● Li

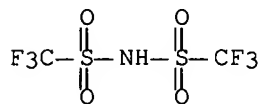
RN 39290-91-0 HCAPLUS

CN Niobium sulfide (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	x	7704-34-9
Nb	x	7440-03-1

RN 90076-65-6 HCAPLUS

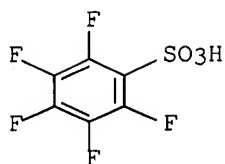
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



● Li

RN 115028-88-1 HCAPLUS

CN Benzenesulfonic acid, 2,3,4,5,6-pentafluoro-, lithium salt (1:1) (CA INDEX NAME)

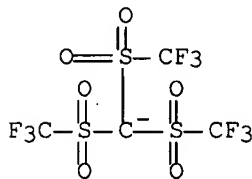


● Li

RN 131344-56-4 HCAPLUS
CN Cobalt lithium nickel oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Co	x	7440-48-4
Ni	x	7440-02-0
Li	x	7439-93-2

RN 132404-42-3 HCAPLUS
CN Methane, [tris[(trifluoromethyl)sulfonyl]methyl]-, ion(1-), lithium (1:1)
(CA INDEX NAME)



● Li⁺

RN 188029-35-8 HCAPLUS
CN Lithium titanium oxide (Li4-7Ti5O12) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	12	17778-80-2
Ti	5	7440-32-6
Li	4 - 7	7439-93-2

RN 423734-10-5 HCAPLUS
CN Cobalt lithium nitride (Co0.1-0.6Li2.4-2.9N) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
N	1	17778-88-0
Co	0.1 - 0.6	7440-48-4
Li	2.4 - 2.9	7439-93-2

RN 423734-14-9 HCAPLUS

CN Lithium nickel nitride (Li_{2.4}-2.9Ni_{0.1}-0.6N) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
N	1	17778-88-0
Ni	0.1 - 0.6	7440-02-0
Li	2.4 - 2.9	7439-93-2

RN 527698-30-2 HCAPLUS

CN Copper lithium tin oxide (Cu_{0.92}LiSn_{0.0802}) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Cu	0.92	7440-50-8
Sn	0.08	7440-31-5
Li	1	7439-93-2

IT 26426-04-0P, Trimethylolpropane trimethacrylate
homopolymer 57592-66-2P, Pentaerythritol tetraacrylate
homopolymer 57592-67-3P, Hexanediol diacrylate
homopolymer 64401-02-1P, Bisphenol A-ethylene oxide adduct
diacrylate 67653-78-5P, Dipentaerythritol
hexaacrylate homopolymer 82200-28-0P, Dipentaerythritol
pentaacrylate homopolymer 85887-85-0P, Ethoxylated
trimethylolpropane triacrylate homopolymer 103315-68-0P
, Di(trimethylolpropane)tetraacrylate homopolymer
117223-60-6P
RL: DEV (Device component use); SPN (Synthetic preparation); PREP
(Preparation)
(in-situ thermal polymerization method for making gel polymer lithium ion
rechargeable electrochem. cells)

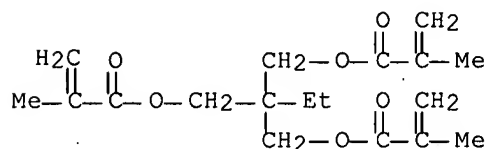
RN 26426-04-0 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1,1'-[2-ethyl-2-[[2-methyl-1-oxo-2-propen-1-yl)oxy]methyl]-1,3-propanediyl] ester, homopolymer (CA INDEX NAME)

CM 1

CRN 3290-92-4

CMF C18 H26 O6



RN 57592-66-2 HCAPLUS

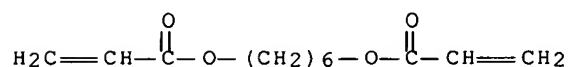
CN 2-Propenoic acid, 1,1'-[2,2-bis[[2-methyl-1-oxo-2-propen-1-yl)oxy]methyl]-1,3-propanediyl] ester, homopolymer (CA INDEX NAME)

CM 1

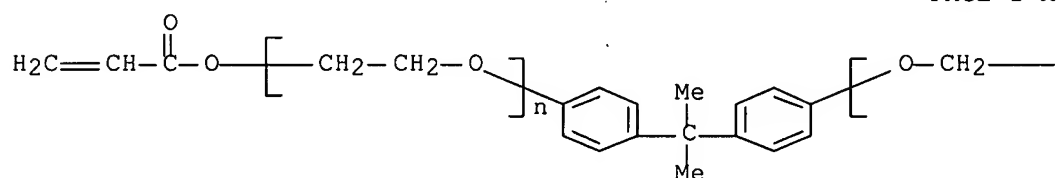
CRN 4986-89-4

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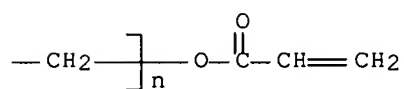
CMF C12 H18.04



CN Poly(oxy-1,2-ethanediyl), α,α' -[(1-methylethylidene)di-4,1-phenylene]bis[ω -[(1-oxo-2-propen-1-yl)oxy]- (CA INDEX NAME)



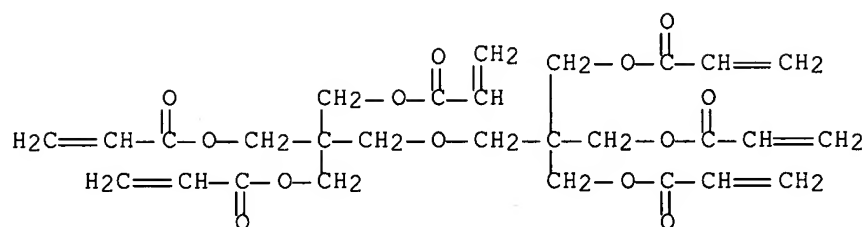
PAGE 1-A



PAGE 1-B

CRN 29570-58-9

CMF C28 H34 O13



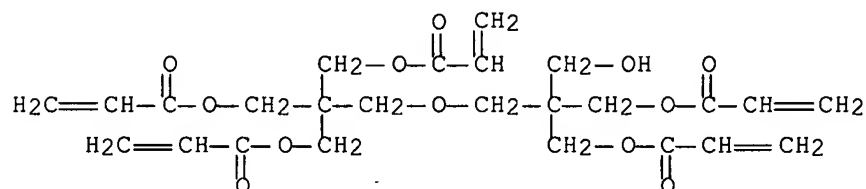
RN 82200-28-0 HCAPLUS

CN 2-Propenoic acid, 1,1'-[-[3-hydroxy-2,2-bis[(1-oxo-2-propen-1-yl)oxy]methyl]propoxy]methyl]-2-[[1-oxo-2-propen-1-yl)oxy]methyl]-1,3-propanediyl] ester, homopolymer (CA INDEX NAME)

CM 1

CRN 60506-81-2

CMF C25 H32 O12



RN 85887-85-0 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), α -hydro- ω -[(1-oxo-2-propenyl)oxy]-, ether with 2-ethyl-2-(hydroxymethyl)-1,3-propanediol (3:1), homopolymer (CA INDEX NAME)

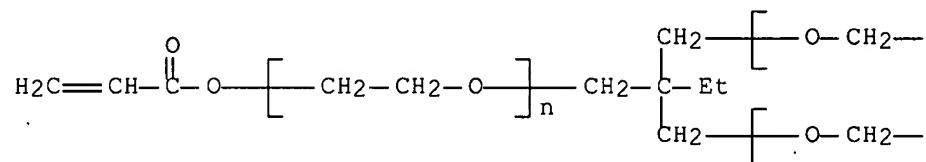
CM 1

CRN 28961-43-5

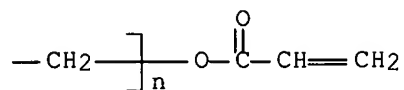
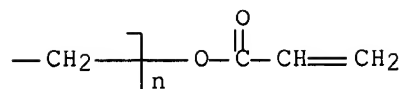
CMF (C2 H4 O)_n (C2 H4 O)_n (C2 H4 O)_n C15 H20 O6

CCI PMS

PAGE 1-A



PAGE 1-B



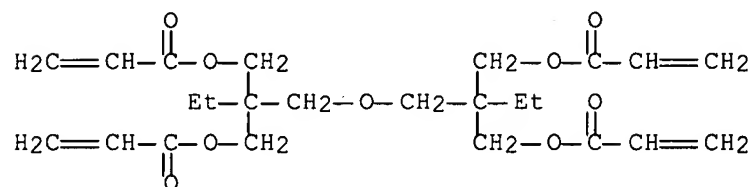
RN 103315-68-0 HCAPLUS

CN 2-Propenoic acid, 1,1'-[2-[[[2,2-bis[[[(1-oxo-2-propen-1-yl)oxy]methyl]butoxy]methyl]-2-ethyl-1,3-propanediyl] ester, homopolymer (CA INDEX NAME)

CM 1

CRN 94108-97-1

CMF C24 H34 O9



RN 117223-60-6 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), α -hydro- ω -[(1-oxo-2-propen-1-yl)oxy]-
, ether with 2,2-bis(hydroxymethyl)-1,3-propanediol (4:1), homopolymer
(CA INDEX NAME)

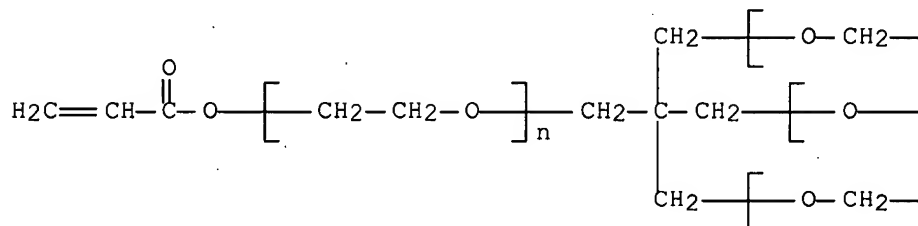
CM 1

CRN 51728-26-8

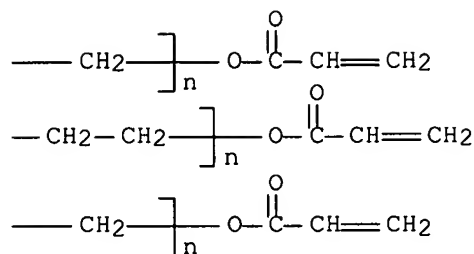
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CCI PMS

PAGE 1-A



PAGE 1-B



L135 ANSWER 14 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2003:262136 HCAPLUS Full-text

DN 138:274121

TI Device using polymer gel electrolyte

IN Nakamura, Seiji; Tabuchi, Masato; Sakai, Takaaki; Miura, Katsuhito;
Murakami, Satoshi

PA Daiso Co., Ltd., Japan

SO PCT Int. Appl., 29 pp.

CODEN: PIXXD2

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003028144	A1	20030403	WO 2002-JP9699	20020920 <--
	W: DE, US				
	JP 2003187637	A	20030704	JP 2002-267975	20020913 <--
	US 2004241551	A1	20041202	US 2004-490026	20040319 <--
PRAI	JP 2001-288844	A	20010921	<--	
	WO 2002-JP9699	W	20020920	<--	

AB The device, especially a secondary lithium battery contains an gel electrolyte obtained by reacting a pre-gel composition, having viscosity at 25° ≤100 mPa and comprising (A) a polyether copolymer which has a weight average mol. weight of 50,000-1,000,000 and is prepared by polymerizing ≥1 oxirane compound having a main chain derived from ethylene oxide and/or propylene oxide and a side chain of oligo-oxyethylene, and an optional oxirane compound having a reactive functional group, (B) a crosslinker, (C) an electrolyte salt compound, (D) an aprotic organic solvent, and (E) an initiator; where the device manufactured by injecting the pre-gel composition into the device having a cathode facing an anode, and gelatinizing the composition by crosslinking reaction, comprises 0.5-10 % gel held between the cathode and the anode.

IC ICM H01M0010-40

ICS H01M0014-00; H01G0009-00; H01B0001-06; H01L0031-04;
G01N0027-406; C08G0065-04CC 52-2 (Electrochemical, Radiational, and Thermal Energy
Technology)ST secondary lithium battery polyether polymer gel
electrolyte compn.

IT Battery electrolytes

(compsn. of crosslinked ether copolymers for
electrolytes in secondary lithium batteries)

IT Polyethers, uses

RL: DEV (Device component use); USES (Uses)

(compsn. of crosslinked ether copolymers for
electrolytes in secondary lithium batteries)

IT Secondary batteries
 (lithium; compns. of crosslinked ether copolymers for
 electrolytes in secondary lithium batteries)

IT 7439-93-2, Lithium, uses
 RL: DEV (Device component use); USES (Uses)
 (anode; compns. of crosslinked ether copolymers for
 electrolytes in secondary lithium batteries)

IT 12190-79-3, Cobalt lithium oxide (CoLiO₂)
 RL: DEV (Device component use); USES (Uses)
 (cathode; compns. of crosslinked ether copolymers for
 electrolytes in secondary lithium batteries)

IT 3006-82-4, Perbutyl O 3006-93-7, N,N'-m-Phenylene bismaleimide
 3290-92-4, Trimethylolpropanetrimethacrylate
 RL: CAT (Catalyst use); USES (Uses)
 (compns. of crosslinked ether copolymers for
 electrolytes in secondary lithium batteries)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate
 616-38-6, Dimethyl carbonate 14283-07-9, Lithium
 tetrafluoroborate 90076-65-6 115383-11-4, Allyl glycidyl
 ether-ethylene oxide-2-(2-methoxy ethoxy)ethyl glycidyl ether
 copolymer 483965-65-7
 RL: DEV (Device component use); USES (Uses)
 (compns. of crosslinked ether copolymers for
 electrolytes in secondary lithium batteries)

IT 7439-93-2, Lithium, uses
 RL: DEV (Device component use); USES (Uses)
 (anode; compns. of crosslinked ether copolymers for
 electrolytes in secondary lithium batteries)

RN 7439-93-2 HCAPLUS
 CN Lithium (CA INDEX NAME)

Li

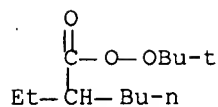
IT 12190-79-3, Cobalt lithium oxide (CoLiO₂)
 RL: DEV (Device component use); USES (Uses)
 (cathode; compns. of crosslinked ether copolymers for
 electrolytes in secondary lithium batteries)

RN 12190-79-3 HCAPLUS
 CN Cobalt lithium oxide (CoLiO₂) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Co	1	7440-48-4
Li	1	7439-93-2

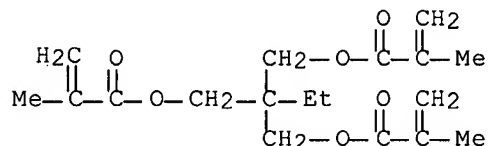
IT 3006-82-4, Perbutyl O 3290-92-4,
 Trimethylolpropanetrimethacrylate
 RL: CAT (Catalyst use); USES (Uses)
 (compns. of crosslinked ether copolymers for
 electrolytes in secondary lithium batteries)

RN 3006-82-4 HCAPLUS
 CN Hexaneperoxoic acid, 2-ethyl-, 1,1-dimethylethyl ester (CA INDEX NAME)



RN 3290-92-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1,1'-[2-ethyl-2-[[(2-methyl-1-oxo-2-propen-1-yl)oxy)methyl]-1,3-propanediyl] ester (CA INDEX NAME)

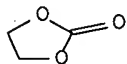


IT 96-49-1, Ethylene carbonate 14283-07-9, Lithium tetrafluoroborate 90076-65-6 483965-65-7

RL: DEV (Device component use); USES (Uses)
(comps. of crosslinked ether copolymers for electrolytes in secondary lithium batteries)

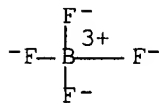
RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



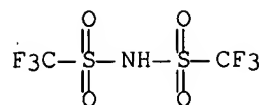
RN 14283-07-9 HCAPLUS

CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



RN 90076-65-6 HCAPLUS

CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



● Li

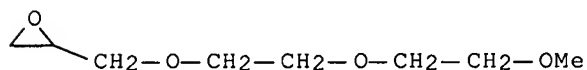
RN 483965-65-7 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, oxiranylmethyl ester, polymer with
[[2-(2-methoxyethoxy)ethoxy]methyl]oxirane and oxirane (9CI) (CA INDEX
NAME)

CM 1

CRN 71712-93-1

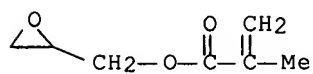
CMF C8 H16 O4



CM 2

CRN 106-91-2

CMF C7 H10 O3



CM 3

CRN 75-21-8

CMF C2 H4 O



RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Daiso Co Ltd	1997			JP 09-539740 A	
Daiso Co Ltd	1997			US 6239204 B	HCAPLUS
Daiso Co Ltd	1997			EP 897941 A1	HCAPLUS
Daiso Co Ltd	1997			WO 9742251 A1	HCAPLUS

Daiso Co Ltd	1998		JP 10-510574 A	
Daiso Co Ltd	1998		JP 10-526483 A	
Daiso Co Ltd	1998		US 6162563 A	HCAPLUS
Daiso Co Ltd	1998		US 6180287 B	HCAPLUS
Daiso Co Ltd	1998		EP 856538 A1	HCAPLUS
Daiso Co Ltd	1998		EP 885913 A1	HCAPLUS
Daiso Co Ltd	1998		WO 9807772 A1	HCAPLUS
Daiso Co Ltd	1998		WO 9825990 A1	HCAPLUS
Daiso Co Ltd	2000		JP 2000306425 A	HCAPLUS
Sanyo Electric Co Ltd	1999		JP 11-214038 A	HCAPLUS
Sanyo Electric Co Ltd	1999		JP 11-283672 A	HCAPLUS
Sanyo Electric Co Ltd	1999		JP 11-283673 A	HCAPLUS

L135 ANSWER 15 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2003:5305 HCAPLUS Full-text

DN 138:42077

TI Preparation of **polymer electrolyte** with good ionic conductivity at room temperature and good mechanical properties for lithium battery

IN Lee, Kyoung-hee; Kim, Ki-ho

PA Samsung SDI Co., Ltd., S. Korea

SO U.S. Pat. Appl. Publ., 11 pp.

CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	US 2003003368	A1	20030102	US 2002-136431	20020502 <--
	US 6933080	B2	20050823		
	KR 2002084614	A	20021109	KR 2001-24041	20010503 <--
	JP 2003017129	A	20030117	JP 2002-130108	20020501 <--
	CN 1388172	A	20030101	CN 2002-121519	20020503 <--
PRAI	KR 2001-24041	A	20010503	<--	

AB A **polymer electrolyte** is formed by curing a composition prepared by mixing a **polymer** of compds. of polyethylene glycol di(meth)acrylates and/or multifunctional ethylene oxides; one selected from a vinylacetate monomer, a (meth)acrylate monomer, and a mixture of a vinyl acetate monomer and a (meth)acrylate monomer; and an **electrolytic** solution containing a lithium salt and an organic solvent.

IC ICM H01M0010-40

ICS H01M0010-04

INCL 429303000; 429317000; 429307000; 429254000; 429144000; 029623100; 429324000; 429094000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 38

ST lithium battery **polymer electrolyte** prepn

IT **Secondary batteries**

(lithium; preparation of **polymer electrolyte** with good ionic conductivity at room temperature and good mech. properties for

lithium

battery)

IT **Battery electrolytes**

Casting of polymeric materials

Crosslinking catalysts

Polymer electrolytes

Secondary battery separators

(preparation of **polymer electrolyte** with good ionic conductivity at room temperature and good mech. properties for lithium

- battery)
- IT Amines, uses
 RL: CAT (Catalyst use); USES (Uses)
 (preparation of **polymer electrolyte** with good ionic conductivity at room temperature and good mech. properties for lithium battery)
- IT Fluoropolymers, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (preparation of **polymer electrolyte** with good ionic conductivity at room temperature and good mech. properties for lithium battery)
- IT Fluoropolymers, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (substrate for casting; preparation of **polymer electrolyte** with good ionic conductivity at room temperature and good mech. properties for lithium battery)
- IT 75-91-2, tert-Butyl hydroperoxide 78-63-7, 2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane 78-67-1, Azobisisobutyronitrile 80-15-9, Cumene hydroperoxide 80-43-3, Dicumyl peroxide 94-36-0, Dibenzoyl peroxide, processes 105-74-8, Dilauroyl peroxide 110-05-4, Di-tert-butyl peroxide 123-23-9, Succinic acid peroxide 762-12-9, Didecanoyl peroxide 927-07-1, tert-Butylperoxy pivalate 2167-23-9, 2,2-Di-(tert-butylperoxy)butane 3025-88-5, 2,5-Dihydroperoxy-2,5-dimethylhexane 4511-39-1, tert-Amylperoxy benzoate 15667-10-4, 1,1-Di-(tert-amylperoxy)cyclohexane 16066-38-9, Di(n-propyl)peroxydicarbonate 16111-62-9, Di(2-ethylhexyl)peroxydicarbonate 19910-65-7, Di(sec-butyl)peroxydicarbonate 26748-47-0, α -Cumyl peroxy neodecanoate 55794-20-2 95732-35-7
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
 (curing initiator; preparation of **polymer electrolyte** with good ionic conductivity at room temperature and good mech. properties for lithium battery)
- IT 102-71-6, Triethanolamine, uses 102-82-9, Tributylamine 103-83-3, n-Benzyl dimethylamine 121-44-8, Triethyl amine, uses
 RL: CAT (Catalyst use); USES (Uses)
 (preparation of **polymer electrolyte** with good ionic conductivity at room temperature and good mech. properties for lithium battery)
- IT 96-47-9, 2-Methyltetrahydrofuran 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 107-31-3, Methyl formate 108-32-7, Propylene carbonate 109-94-4, Ethyl formate 109-99-9, Thf, uses 616-38-6, Dimethyl carbonate 623-53-0, Methyl ethyl carbonate 7791-03-9, Lithium perchlorate 9002-88-4, Polyethylene 9003-07-0, Polypropylene 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 33454-82-9, Lithium triflate 73506-93-1, Diethoxyethane
 RL: DEV (Device component use)
 (preparation of **polymer electrolyte** with good ionic conductivity at room temperature and good mech. properties for lithium battery)
- IT 80-62-6DP, Methylmethacrylate, polymers with vinyl acetate and isoerythritol diether esters 108-05-4DP, Vinyl acetate, polymers with Me methacrylate and isoerythritol diether esters 27015-60-7P, Ethylene glycol

dimethacrylate-vinyl acetate copolymer 60712-37-0DP,
esters with acrylate and 6-hydroxyhexanoate, polymers
containing vinyl acetate and Me methacrylate 95877-34-2P,
Ethylene glycol dimethacrylate-methyl methacrylate
-vinyl acetate copolymer

RL: DEV (Device component use); SPN (Synthetic preparation); PREP
(Preparation)

(preparation of polymer electrolyte with good ionic
conductivity at room temperature and good mech. properties for lithium
battery)

IT 9002-84-0, Teflon

RL: TEM (Technical or engineered material use); USES (Uses)

(substrate for casting; preparation of polymer electrolyte

with good ionic conductivity at room temperature and good mech. properties

for

lithium battery)

IT 75-91-2, tert-Butyl hydroperoxide 78-63-7,
2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane 78-67-1,
Azobisisobutyronitrile 80-15-9, Cumene hydroperoxide
80-43-3, Dicumyl peroxide 94-36-0, Dibenzoyl peroxide,
processes 105-74-8, Dilauroyl peroxide 110-05-4,
Di-tert-butyl peroxide 2167-23-9, 2,2-Di-(tert-
butylperoxy)butane 3025-88-5, 2,5-Dihydroperoxy-2,5-
dimethylhexane 16066-38-9, Di(n-propyl)peroxydicarbonate
16111-62-9, Di(2-ethylhexyl)peroxydicarbonate 19910-65-7
, Di(sec-butyl)peroxydicarbonate 26748-47-0, α-Cumyl
peroxy neodecanoate 55794-20-2 95732-35-7

RL: CPS (Chemical process); PEP (Physical, engineering or chemical
process); PROC (Process)

(curing initiator; preparation of polymer electrolyte

with good ionic conductivity at room temperature and good mech. properties

for

lithium battery)

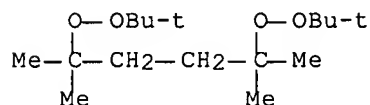
RN 75-91-2 HCAPLUS

CN Hydroperoxide, 1,1-dimethylethyl (CA INDEX NAME)

HO—O—Bu-t

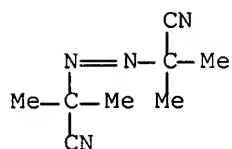
RN 78-63-7 HCAPLUS

CN Peroxide, 1,1'-(1,1,4,4-tetramethyl-1,4-butanediyl)bis[2-(1,1-
dimethylethyl) (CA INDEX NAME)



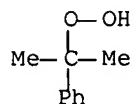
RN 78-67-1 HCAPLUS

CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)



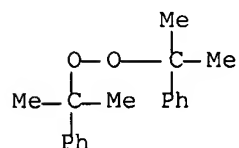
RN 80-15-9 HCAPLUS

CN Hydroperoxide, 1-methyl-1-phenylethyl (CA INDEX NAME)



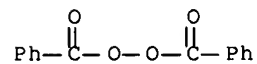
RN 80-43-3 HCAPLUS

CN Peroxide, bis(1-methyl-1-phenylethyl) (CA INDEX NAME)



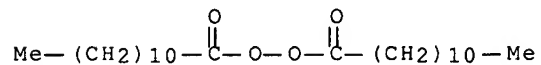
RN 94-36-0 HCAPLUS

CN Peroxide, dibenzoyl (CA INDEX NAME)



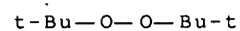
RN 105-74-8 HCAPLUS

CN Peroxide, bis(1-oxododecyl) (CA INDEX NAME)



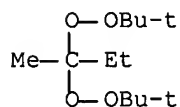
RN 110-05-4 HCAPLUS

CN Peroxide, bis(1,1-dimethylethyl) (CA INDEX NAME)



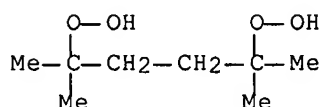
RN 2167-23-9 HCAPLUS

CN Peroxide, 1,1'-(1-methylpropylidene)bis[2-(1,1-dimethylethyl) (CA INDEX NAME)



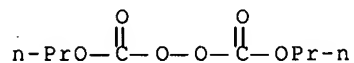
RN 3025-88-5 HCAPLUS

CN Hydroperoxide, 1,1'-(1,1,4,4-tetramethyl-1,4-butanediyl)bis- (CA INDEX NAME)



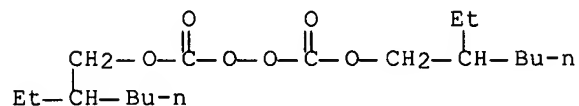
RN 16066-38-9 HCAPLUS

CN Peroxydicarbonic acid, C,C'-dipropyl ester (CA INDEX NAME)



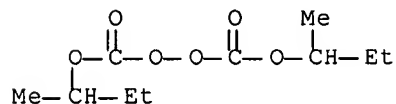
RN 16111-62-9 HCAPLUS

CN Peroxydicarbonic acid, C,C'-bis(2-ethylhexyl) ester (CA INDEX NAME)



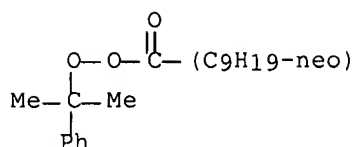
RN 19910-65-7 HCAPLUS

CN Peroxydicarbonic acid, C,C'-bis(1-methylpropyl) ester (CA INDEX NAME)



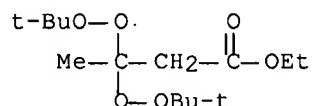
RN 26748-47-0 HCAPLUS

CN Neodecaneperoxoic acid, 1-methyl-1-phenylethyl ester (CA INDEX NAME)



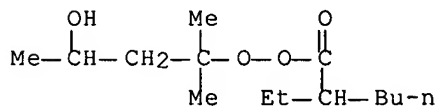
RN 55794-20-2 HCAPLUS

CN Butanoic acid, 3,3-bis[(1,1-dimethylethyl)dioxy]-, ethyl ester (CA INDEX NAME)



RN 95732-35-7 HCAPLUS

CN Hexaneperoxoic acid, 2-ethyl-, 3-hydroxy-1,1-dimethylbutyl ester (CA INDEX NAME)



IT 96-47-9, 2-Methyltetrahydrofuran 96-48-0,

γ -Butyrolactone 96-49-1, Ethylene carbonate

108-32-7, Propylene carbonate 109-99-9, Thf, uses

7791-03-9, Lithium perchlorate 14283-07-9, Lithium

tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate

33454-82-9, Lithium triflate

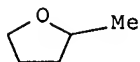
RL: DEV (Device component use)

(preparation of polymer electrolyte with good ionic

conductivity at room temperature and good mech. properties for lithium battery)

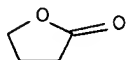
RN 96-47-9 HCAPLUS

CN Furan, tetrahydro-2-methyl- (CA INDEX NAME)

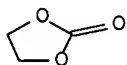


RN 96-48-0 HCAPLUS

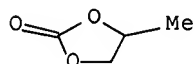
CN 2(3H)-Furanone, dihydro- (CA INDEX NAME)



RN 96-49-1 HCAPLUS
 CN 1,3-Dioxolan-2-one (CA INDEX NAME)



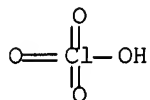
RN 108-32-7 HCAPLUS
 CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



RN 109-99-9 HCAPLUS
 CN Furan, tetrahydro- (CA INDEX NAME)

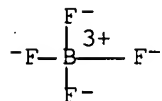


RN 7791-03-9 HCAPLUS
 CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)



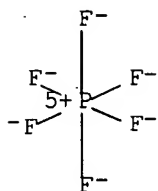
● Li

RN 14283-07-9 HCAPLUS
 CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



● Li⁺

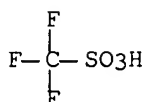
RN 21324-40-3 HCAPLUS
 CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



● Li⁺

RN 33454-82-9 HCAPLUS

CN Methanesulfonic acid, 1,1,1-trifluoro-, lithium salt (1:1) (CA INDEX NAME)

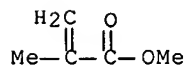


● Li

IT 80-62-6DP, Methylmethacrylate, polymers with vinyl acetate and isoerythritol diether esters 27015-60-7P, Ethylene glycol dimethacrylate-vinyl acetate copolymer 95877-34-2P, Ethylene glycol dimethacrylate-methyl methacrylate-vinyl acetate copolymer
 RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation)
 (preparation of polymer electrolyte with good ionic conductivity at room temperature and good mech. properties for lithium battery)

RN 80-62-6 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, methyl ester (CA INDEX NAME)



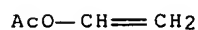
RN 27015-60-7 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1,1'-(1,2-ethanediyl) ester, polymer with ethenyl acetate (CA INDEX NAME)

CM 1

CRN 108-05-4

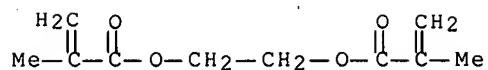
CMF C4 H6 O2



CM 2

CRN 97-90-5

CMF C10 H14 O4



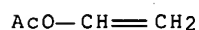
RN 95877-34-2 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1,1'-(1,2-ethanediyl) ester, polymer with ethenyl acetate and methyl 2-methyl-2-propenoate (CA INDEX NAME)

CM 1

CRN 108-05-4

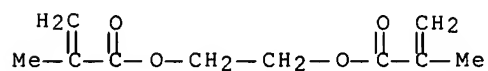
CMF C4 H6 O2



CM 2

CRN 97-90-5

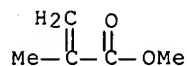
CMF C10 H14 O4



CM 3

CRN 80-62-6

CMF C5 H8 O2



RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
=====	=====	=====	=====	=====	=====
Anon	1988			JP 63-94501	HCAPLUS
Anon	1991			JP 03-195713	HCAPLUS
Anon	1995			DE 4431773 A1	HCAPLUS

Anon	1998		JP 10-130346	HCAPLUS
Anon	1998		JP 10130346 A	HCAPLUS
Anon	2000		EP 1037294 A2	HCAPLUS
Anon	2002		KR 200277732	
Lee	1989		US 4830939 A	HCAPLUS
Schwab	1988		US 4792504 A	HCAPLUS
Subramaniam	1998		US 5817016 A	
Takahashi	1990		US 4908283 A	HCAPLUS
Yasukawa	1989		US 4798773 A	HCAPLUS

L135 ANSWER 16 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2002:773880 HCAPLUS Full-text

DN 137:297339

TI Nonaqueous secondary electric battery

IN Kato, Shiro; Kinoshita, Hajime; Yata, Shizukuni; Kikuta, Haruo

PA Osaka Gas Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	---	-----	-----	-----
PI	JP 2002298916	A	20021011	JP 2001-93610	20010328 <--
PRAI	JP 2001-93610		20010328	<--	

AB The battery is characterized by having a flat shape of ≤ 12 mm thickness with a volume energy d. of 180 Wh/L and a capacity of ≥ 30 Wh. The battery has a pos. electrode, a neg. electrode, and a gel or solid nonaq. electrolyte containing Li salt. The atmospheric pressure inside the battery cell is 8.66×10^4 Pa. The neg. electrode contains a material which is capable of doping and dedoping of Li. The pos. electrode contains manganese oxide. The thickness of the cell container is ≥ 0.2 mm. The battery eliminates the electrolyte leaking.

IC ICM H01M0010-40

ICS H01M0002-02

CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 76

ST nonaq secondary elec battery lithium salt

IT Secondary batteries

(nonaq. secondary elec. battery using lithium salt)

IT Carbon black, uses

Fluoropolymers, uses

RL: TEM (Technical or engineered material use); USES (Uses)

(nonaq. secondary elec. battery using lithium salt)

IT 78-67-1 96-49-1, Ethylene carbonate 105-58-8, Diethyl

carbonate 872-50-4, N-Methylpyrrolidone, uses 7440-44-0

, Carbon, uses 7440-50-8, Copper, uses 24937-79-9, Poly-vinylidene

fluoride 28158-16-9, Polyethylene diacrylate

210767-01-4, Lithium manganese oxide (LiMn2O2)

RL: TEM (Technical or engineered material use); USES (Uses)

(nonaq. secondary elec. battery using lithium salt)

IT 78-67-1 96-49-1, Ethylene carbonate 872-50-4,

N-Methylpyrrolidone, uses 7440-44-0, Carbon, uses

28158-16-9, Polyethylene diacrylate 210767-01-4

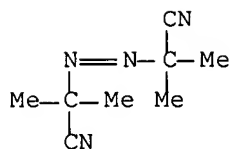
, Lithium manganese oxide (LiMn2O2)

RL: TEM (Technical or engineered material use); USES (Uses)

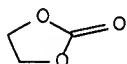
(nonaq. secondary elec. battery using lithium salt)

RN 78-67-1 HCAPLUS

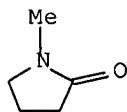
CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)



RN 96-49-1 HCAPLUS
 CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 872-50-4 HCAPLUS
 CN 2-Pyrrolidinone, 1-methyl- (CA INDEX NAME)



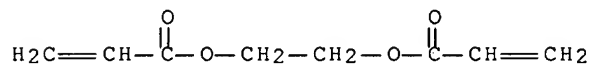
RN 7440-44-0 HCAPLUS
 CN Carbon (CA INDEX NAME)

C

RN 28158-16-9 HCAPLUS
 CN 2-Propenoic acid, 1,1'-(1,2-ethanediyl) ester, homopolymer (CA INDEX NAME)

CM 1

CRN 2274-11-5
 CMF C8 H10 O4



RN 210767-01-4 HCAPLUS
 CN Lithium manganese oxide (LiMn2O2) (9CI) (CA INDEX NAME)

Component	Ratio	Component	Registry Number
=====+=====+=====			

O		2		17778-80-2
Mn		2		7439-96-5
Li		1		7439-93-2

L135 ANSWER 17 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2002:585696 HCAPLUS Full-text

DN 137:111647

TI Secondary Li ion battery using colloidal polymer as electrolyte and its preparing process

IN Gu, Hui; Huang, Xuejie; Chen, Liquan

PA Inst. of Physics, Chinese Academy of Sciences, Peop. Rep. China

SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 33 pp.

CODEN: CNXXEV

DT Patent

LA Chinese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	---	-----	-----	-----
PI	CN 1315752	A	20011003	CN 2000-105541	20000330 <--
PRAI	CN 2000-105541		20000330	<--	

AB The battery consists of an anode with a carbonaceous material as active material, a cathode with LiCoO₂, LiNiO₂, or LiMn₂O₄ as active material, colloidal polymer electrolyte, polymer separator, etc. The colloidal polymer electrolyte is prepared from: (1) monomers such as Me methacrylate, Bu methacrylate, isooctyl methacrylate, allyl methacrylate, Me acrylate, Et acrylate, Bu acrylate, polyethylene glycol alkyl ether monoacrylate, polyethylene glycol diacrylate, polyethylene glycol alkyl ether monomethacrylate, or polyethylene glycol dimethacrylate, (2) solvent for the electrolyte such as ethylene carbonate, propylene carbonate, di-Me carbonate, di-Et carbonate, ethylmethyl carbonate, or dimethoxyethane, (3) soluble Li salt such as LiN(CF₃SO₂)₃, LiClO₄, LiBF₄, LiPF₆, LiCF₃SO₃, LiNH(CF₃SO₂)₂, or LiAsF₆, (4) initiators such as AIBN, 2,2'-azobis(isoheptyronitrile), 2-tert-Bu oxide, dicumyl peroxide, benzoyl superoxide, dilauroyl peroxide, isopropylbenzene hydroperoxide, diisopropyl pyrocarbonate, dicyclohexyl pyrocarbonate, cyclohexane carboxylate, organometallic compds., triethylboron, combination of benzoyl superoxide and N,N-di-Me aniline, benzoin iso-Bu ether, benzoin iso-Pr ether, benzoin Me ether, benzoin Et ether, benzophenone, acetophenone, diethoxyacetophenone, etc., (5) nanometer SiO₂ or Al₂O₃, amorphous film separator of polymers such as polypropylene, polyethylene, poly(vinylidene fluoride), PAN, or fiber- or powder- reinforced polyethylene glycol.

IC ICM H01M0010-40

ICS H01M0010-38

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium ion battery colloidal polymer electrolyte

IT Polyoxyalkylenes, uses

RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)

(alkyl ether mono(meth)acrylate; secondary Li ion battery using colloidal polymer as electrolyte and preparing process)

IT Secondary batteries

(lithium; secondary Li ion battery using colloidal polymer as electrolyte and preparing process)

IT Battery anodes

Battery cathodes

Colloids

Polymer electrolytes

Secondary battery separators

(secondary Li ion battery using colloidal polymer as electrolyte and preparing process)

IT Carbonaceous materials (technological products)

Fluoropolymers, uses

Polyoxyalkylenes, uses

RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(secondary Li ion battery using colloidal polymer as electrolyte and preparing process)

IT 78-67-1, AIBN 80-15-9, Isopropylbenzene hydroperoxide
80-43-3, Dicumyl peroxide 94-36-0, Benzoyl superoxide,
uses 96-49-1, Ethylene carbonate 97-94-9, Triethylboron
98-86-2, Acetophenone, uses 105-58-8, Diethyl carbonate 105-74-8
, Dilauroyl peroxide 108-32-7, Propylene carbonate
110-05-4, Bis(tert-Butyl) peroxide 110-71-4 119-61-9,
Benzophenone, uses 121-69-7, N,N-Dimethyl aniline, uses 574-09-4,
Benzoin ethyl ether 616-38-6, Dimethyl carbonate 623-53-0, Ethylmethyl
carbonate 1344-28-1, Alumina, uses 3198-23-0, Cyclohexane carboxylate
3524-62-7, Benzoin methyl ether 6175-45-7, Diethoxyacetophenone
6652-28-4, Benzoin isopropyl ether 7631-86-9, Silica, uses
7791-03-9, Lithium perchlorate 9002-88-4, Polyethylene
9003-07-0, Polypropylene 9011-17-0, Vinylidene fluoride-
hexafluoropropene copolymer 12031-65-1, Lithium nickel
oxide (LiNiO₂) 12057-17-9, Lithium manganese oxide (LiMn₂O₄)
12190-79-3, Cobalt lithium oxide (LiCoO₂) 14283-07-9,
Lithium tetrafluoroborate (LiBF₄) 15545-95-6 21324-40-3,
Lithium hexafluorophosphate (LiPF₆) 22499-12-3, Benzoin isobutyl ether
24425-00-1, Diisopropyl pyrocarbonate 24937-79-9, Poly(vinylidene
fluoride) 25014-41-9, PAN (polymer) 25322-68-3,
Poly(ethylene glycol) 29935-35-1, Lithium hexafluoroarsenate
(LiAsF₆) 33454-82-9 61114-49-6, Dicyclohexyl pyrocarbonate
90076-65-6

RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(secondary Li ion battery using colloidal polymer as electrolyte and preparing process)

IT 80-62-6, Methyl methacrylate 96-05-9, Allyl
methacrylate 96-33-3, Methyl acrylate
97-63-2, Ethyl methacrylate 97-86-9, IsoButyl
methacrylate 97-88-1, Butyl methacrylate
140-88-5, Ethyl acrylate 141-32-2, Butyl
acrylate 2210-28-8, Propyl methacrylate
25322-68-3D, Polyethylene glycol, alkyl ether mono(meth)acrylate
25721-76-0, Polyethylene glycol dimethacrylate
28158-16-9, Poly(ethylene glycol diacrylate)
28675-80-1, Isooctyl methacrylate

RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)

(secondary Li ion battery using colloidal polymer as electrolyte and preparing process)

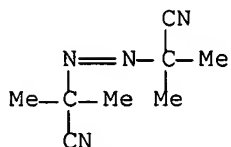
IT 78-67-1, AIBN 80-15-9, Isopropylbenzene hydroperoxide
80-43-3, Dicumyl peroxide 94-36-0, Benzoyl superoxide,
uses 96-49-1, Ethylene carbonate 105-74-8, Dilauroyl
peroxide 108-32-7, Propylene carbonate 110-05-4,
Bis(tert-Butyl) peroxide 7791-03-9, Lithium perchlorate
12031-65-1, Lithium nickel oxide (LiNiO₂) 12057-17-9,

Lithium manganese oxide (LiMn2O4) 12190-79-3, Cobalt lithium
oxide (LiCoO2) 14283-07-9, Lithium tetrafluoroborate (LiBF4)
21324-40-3, Lithium hexafluorophosphate (LiPF6) 29935-35-1
, Lithium hexafluoroarsenate (LiAsF6) 33454-82-9
90076-65-6

RL: CPS (Chemical process); DEV (Device component use); PEP (Physical,
engineering or chemical process); PROC (Process); USES (Uses)
(secondary Li ion battery using colloidal polymer
as electrolyte and preparing process)

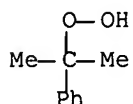
RN 78-67-1 HCAPLUS

CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)



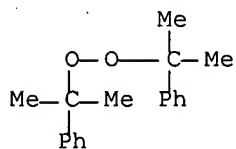
RN 80-15-9 HCAPLUS

CN Hydroperoxide, 1-methyl-1-phenylethyl (CA INDEX NAME)



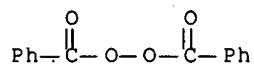
RN 80-43-3 HCAPLUS

CN Peroxide, bis(1-methyl-1-phenylethyl) (CA INDEX NAME)



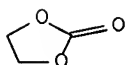
RN 94-36-0 HCAPLUS

CN Peroxide, dibenzoyl (CA INDEX NAME)

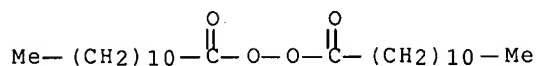


RN 96-49-1 HCAPLUS

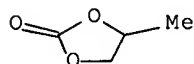
CN 1,3-Dioxolan-2-one (CA INDEX NAME)



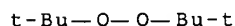
RN 105-74-8 HCAPLUS
CN Peroxide, bis(1-oxododecyl) (CA INDEX NAME)



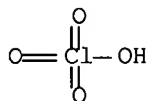
RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



RN 110-05-4 HCAPLUS
CN Peroxide, bis(1,1-dimethylethyl) (CA INDEX NAME)



RN 7791-03-9 HCAPLUS
CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)



● Li

RN 12031-65-1 HCAPLUS
CN Lithium nickel oxide (LiNiO2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Ni	1	7440-02-0
Li	1	7439-93-2

RN 12057-17-9 HCAPLUS
CN Lithium manganese oxide (LiMn2O4) (CA INDEX NAME)

Component	Ratio	Component Registry Number
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O	4	17778-80-2
Mn	2	7439-96-5
Li	1	7439-93-2

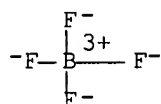
RN 12190-79-3 HCAPLUS

CN Cobalt lithium oxide (CoLiO2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Co	1	7440-48-4
Li	1	7439-93-2

RN 14283-07-9 HCAPLUS

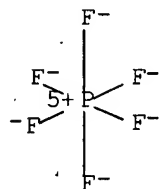
CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



● Li⁺

RN 21324-40-3 HCAPLUS

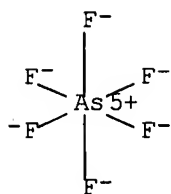
CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



● Li⁺

RN 29935-35-1 HCAPLUS

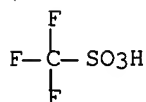
CN Arsenate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



● Li⁺

RN 33454-82-9 HCAPLUS

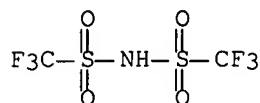
CN Methanesulfonic acid, 1,1,1-trifluoro-, lithium salt (1:1) (CA INDEX NAME)



● Li

RN 90076-65-6 HCAPLUS

CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



● Li

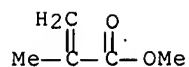
IT 80-62-6, Methyl methacrylate 96-05-9, Allyl methacrylate 96-33-3, Methyl acrylate 97-63-2, Ethyl methacrylate 97-86-9, IsoButyl methacrylate 97-88-1, Butyl methacrylate 140-88-5, Ethyl acrylate 141-32-2, Butyl acrylate 2210-28-8, Propyl methacrylate 25721-76-0, Polyethylene glycol dimethacrylate 28158-16-9, Poly(ethylene glycol diacrylate) 28675-80-1, Isooctyl methacrylate

RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)

(secondary Li ion battery using colloidal polymer as electrolyte and preparing process)

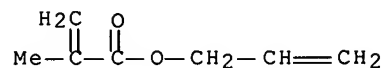
RN 80-62-6 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, methyl ester (CA INDEX NAME)



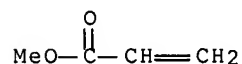
RN 96-05-9 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-propen-1-yl ester (CA INDEX NAME)



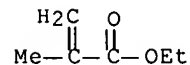
RN 96-33-3 HCAPLUS

CN 2-Propenoic acid, methyl ester (CA INDEX NAME)



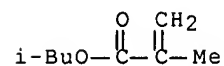
RN 97-63-2 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, ethyl ester (CA INDEX NAME)



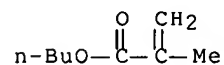
RN 97-86-9 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-methylpropyl ester (CA INDEX NAME)



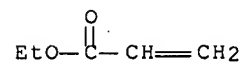
RN 97-88-1 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, butyl ester (CA INDEX NAME)

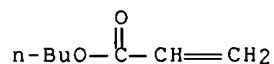


RN 140-88-5 HCAPLUS

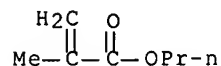
CN 2-Propenoic acid, ethyl ester (CA INDEX NAME)



RN 141-32-2 HCAPLUS
 CN 2-Propenoic acid, butyl ester (CA INDEX NAME)



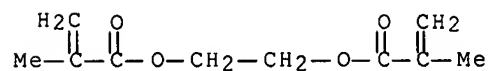
RN 2210-28-8 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, propyl ester (CA INDEX NAME)



RN 25721-76-0 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, 1,1'-(1,2-ethanediyl) ester, homopolymer (CA INDEX NAME)

CM 1

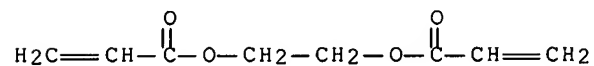
CRN 97-90-5
 CMF C10 H14 O4



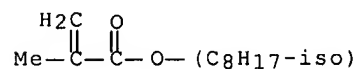
RN 28158-16-9 HCAPLUS
 CN 2-Propenoic acid, 1,1'-(1,2-ethanediyl) ester, homopolymer (CA INDEX NAME)

CM 1

CRN 2274-11-5
 CMF C8 H10 O4



RN 28675-80-1 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, isooctyl ester (CA INDEX NAME)



AN 2002:172424 HCAPLUS Full-text
 DN 136:234631
 TI Gel electrolyte lithium battery with improved safety and reliability
 IN Lee, Yong-beom
 PA Samsung SDI Co., Ltd., S. Korea
 SO U.S. Pat. Appl. Publ., 12 pp.
 CODEN: USXXCO
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002028388	A1	20020307	US 2001-938302	20010824 <--
	US 6680147	B2	20040120		
	KR 2002019212	A	20020312	KR 2000-52364	20000905 <--
	KR 2002019213	A	20020312	KR 2000-52365	20000905 <--
	CN 1341977	A	20020327	CN 2001-123114	20010713 <--
	JP 2002151150	A	20020524	JP 2001-269134	20010905 <--
PRAI	KR 2000-52364	A	20000905	<--	
	KR 2000-52365	A	20000905	<--	

AB A lithium battery which includes an electrode assembly having a cathode, an anode and a separator interposed between the cathode and the anode, a gel electrolyte prepared by curing a composition consisting of a polysiloxane compound or a polysiloxane-polyoxyalkylene compound, a polyethylene glycol derivative, and an organic solvent containing a lithium salt. The lithium battery has improved reliability and safety since a swelling phenomenon due to an electrolytic solution is effectively suppressed and leakage of the electrolytic solution is prevented.

IC ICM H01M0010-40

INCL 429303000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 38

ST lithium battery gel electrolyte improved safety reliability;
 safety improvement lithium battery gel electrolyte

IT Polysiloxanes, uses

RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (acrylic; gel electrolyte lithium battery with improved safety and reliability)

IT Polyoxyalkylenes, uses

RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (derivative; gel electrolyte lithium battery with improved safety and reliability)

IT Battery electrolytes

Polymer electrolytes

Safety

(gel electrolyte lithium battery with improved safety and reliability)

IT Polysiloxanes, uses

RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (gel electrolyte lithium battery with improved safety and reliability)

IT Fluoropolymers, uses

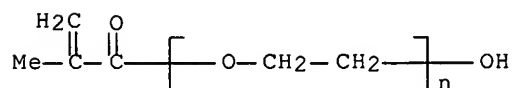
RL: MOA (Modifier or additive use); USES (Uses)
 (gel electrolyte lithium battery with improved safety and reliability)

- IT Secondary batteries
(lithium; gel electrolyte lithium battery with improved safety and reliability)
- IT Carbon fibers, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(meso-; gel electrolyte lithium battery with improved safety and reliability)
- IT Polymerization
(photopolymn., or electron-beam; gel electrolyte lithium battery with improved safety and reliability)
- IT Electron beams
UV radiation
(polymerization induced by; gel electrolyte lithium battery with improved safety and reliability)
- IT Polysiloxanes, uses
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(polyoxyalkylene-; gel electrolyte lithium battery with improved safety and reliability)
- IT Polyoxyalkylenes, uses
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(polysiloxane-; gel electrolyte lithium battery with improved safety and reliability)
- IT Polymerization
(thermal; gel electrolyte lithium battery with improved safety and reliability)
- IT 7440-44-0, Super p, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(activated; gel electrolyte lithium battery with improved safety and reliability)
- IT 25322-68-3D, Polyethylene glycol, derivative 25736-86-1, Polyethylene glycol monomethacrylate 25852-47-5, Polyethylene glycol dimethacrylate 26403-58-7, Polyethylene glycol monoacrylate 26570-48-9, Polyethylene glycol diacrylate
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(gel electrolyte lithium battery with improved safety and reliability)
- IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 112-49-2, Triglyme 143-24-8, Tetraglyme 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 872-36-6, Vinylene carbonate 7429-90-5, Aluminum, uses 7440-50-8, Copper, uses 7791-03-9, Lithium perchlorate 9002-88-4, Polyethylene 12190-79-3, Cobalt lithium oxide colio2 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 90076-65-6
RL: DEV (Device component use); USES (Uses)
(gel electrolyte lithium battery with improved safety and reliability)
- IT 28961-43-5D, ethoxylated
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(gel electrolyte lithium battery with improved safety and reliability)

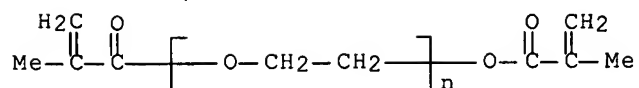
- IT 402934-96-7P, α -[Dimethyl(3-methoxypropyl)silyl]- ω -
[[dimethyl[3-[(2-methyl-1-oxo-2-propenyl)oxy]propoxy]silyl]oxy]poly[oxy(di
methylsilylene)]-polyethylene glycol dimethacrylate-polyethylene
glycol monomethacrylate-ethoxylated trimethylolpropane
triacrylate copolymer 402934-98-9P
RL: DEV (Device component use); SPN (Synthetic preparation); PREP
(Preparation); USES (Uses)
(gel electrolyte lithium battery with improved
safety and reliability)
- IT 24937-79-9, PvdF
RL: MOA (Modifier or additive use); USES (Uses)
(gel electrolyte lithium battery with improved safety and
reliability)
- IT 78-67-1, Azobisisobutyronitrile 94-36-0, Benzoyl
peroxide, processes 105-74-8, Lauroyl peroxide 110-22-5,
Acetyl peroxide 119-61-9, Benzophenone, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical
process); PROC (Process)
(polymerization initiator; gel electrolyte lithium
battery with improved safety and reliability)
- IT 7440-44-0, Super p, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES
(Uses)
(activated; gel electrolyte lithium battery with improved
safety and reliability)
- RN 7440-44-0 HCAPLUS
CN Carbon (CA INDEX NAME)

C

- IT 25736-86-1, Polyethylene glycol monomethacrylate
25852-47-5, Polyethylene glycol dimethacrylate
26403-58-7, Polyethylene glycol monoacrylate
26570-48-9, Polyethylene glycol diacrylate
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical,
engineering or chemical process); PROC (Process); USES (Uses)
(gel electrolyte lithium battery with improved safety and
reliability)
- RN 25736-86-1 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α -(2-methyl-1-oxo-2-propen-1-yl)- ω -
hydroxy- (CA INDEX NAME)

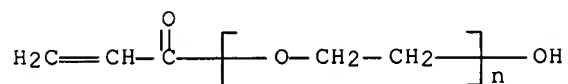


- RN 25852-47-5 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α -(2-methyl-1-oxo-2-propen-1-yl)- ω -
[(2-methyl-1-oxo-2-propen-1-yl)oxy]- (CA INDEX NAME)



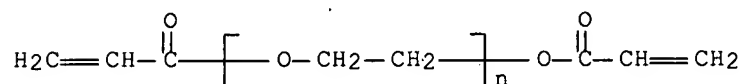
RN 26403-58-7 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), α -(1-oxo-2-propen-1-yl)- ω -hydroxy-
(CA INDEX NAME)



RN 26570-48-9 HCAPLUS

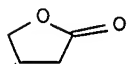
CN Poly(oxy-1,2-ethanediyl), α -(1-oxo-2-propen-1-yl)- ω -[(1-oxo-2-propen-1-yl)oxy]- (CA INDEX NAME)



IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 7791-03-9, Lithium perchlorate 12190-79-3, Cobalt lithium oxide colio2 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 90076-65-6
RL: DEV (Device component use); USES (Uses)
(gel electrolyte lithium battery with improved safety and reliability)

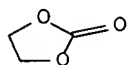
RN 96-48-0 HCAPLUS

CN 2(3H)-Furanone, dihydro- (CA INDEX NAME)



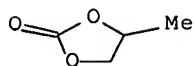
RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



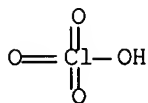
RN 108-32-7 HCAPLUS

CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



RN 7791-03-9 HCAPLUS

CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)



● Li

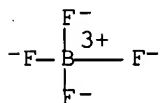
RN 12190-79-3 HCAPLUS

CN Cobalt lithium oxide (CoLiO2) (CA INDEX NAME)

Component	Ratio	Component
		Registry Number
O	2	17778-80-2
Co	1	7440-48-4
Li	1	7439-93-2

RN 14283-07-9 HCAPLUS

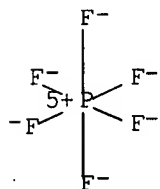
CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



● Li⁺

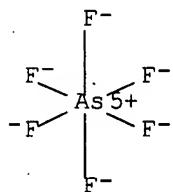
RN 21324-40-3 HCAPLUS

CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



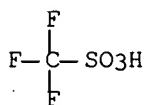
● Li⁺

RN 29935-35-1 HCAPLUS
 CN Arsenate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



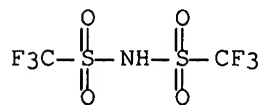
● Li⁺

RN 33454-82-9 HCAPLUS
 CN Methanesulfonic acid, 1,1,1-trifluoro-, lithium salt (1:1) (CA INDEX NAME)



● Li

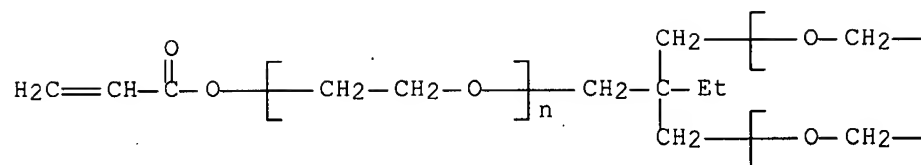
RN 90076-65-6 HCAPLUS
 CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



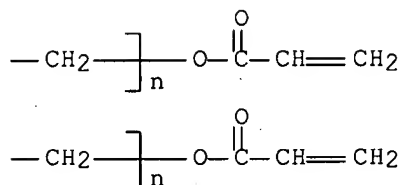
● Li

IT 28961-43-5D, ethoxylated
 RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
 (gel electrolyte lithium battery with improved safety and reliability)
 RN 28961-43-5 HCAPLUS
 CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-[(1-oxo-2-propen-1-yl)oxy]-, ether with 2-ethyl-2-(hydroxymethyl)-1,3-propanediol (3:1) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



IT 402934-96-7P, α -[Dimethyl(3-methoxypropyl)silyl]- ω -
 [[dimethyl[3-[(2-methyl-1-oxo-2-propenyl)oxy]propoxy]silyl]oxy]poly[oxy(di-
 methylsilylene)]-polyethylene glycol dimethacrylate-polyethylene
 glycol monomethacrylate-ethoxylated trimethylolpropane
 triacrylate copolymer 402934-98-9P

RL: DEV (Device component use); SPN (Synthetic preparation); PREP
 (Preparation); USES (Uses)
 (gel electrolyte lithium battery with improved
 safety and reliability)

RN 402934-96-7 HCAPLUS

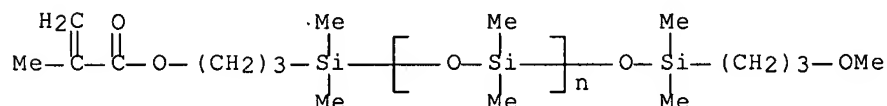
CN Poly[oxy(dimethylsilylene)], α -[dimethyl[3-[(2-methyl-1-oxo-2-
 propenyl)oxy]propyl]silyl]- ω -[[3-methoxypropyl]dimethylsilyl]oxy]-,
 polymer with α -hydro- ω -[(1-oxo-2-propenyl)oxy]poly(oxy-1,2-
 ethanediyl) ether with 2-ethyl-2-(hydroxymethyl)-1,3-propanediol (3:1),
 α -(2-methyl-1-oxo-2-propenyl)- ω -hydroxypoly(oxy-1,2-
 ethanediyl) and α -(2-methyl-1-oxo-2-propenyl)- ω -[(2-methyl-1-
 oxo-2-propenyl)oxy]poly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

CM 1

CRN 402934-95-6

CMF (C2 H6 O Si)_n C15 H32 O4 Si2

CCI PMS



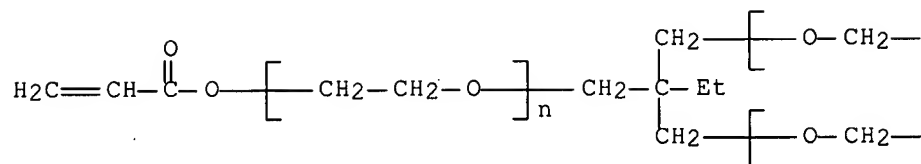
CM 2

CRN 28961-43-5

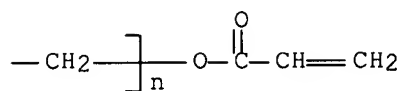
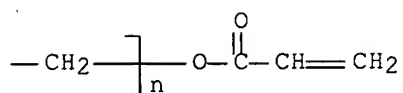
CMF (C2 H4 O)_n (C2 H4 O)_n (C2 H4 O)_n C15 H20 O6

CCI PMS

PAGE 1-A



PAGE 1-B

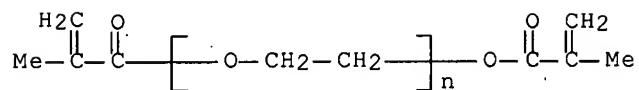


CM 3

CRN 25852-47-5

CME (C2 H4 O)_n C8 H10 O3

CCI PMS

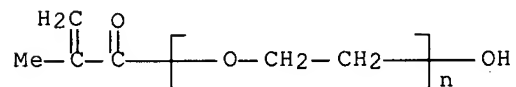


CM 4

CRN 25736-86-1

CMF (C2 H4 O)_n C4 H6 O2

CCI PMS



RN 402934-98-9 HCAPLUS

CN Poly[oxy(dimethylsilylene)], α-[dimethyl[3-[(2-methyl-1-oxo-2-propenyl)oxy]propyl]silyl]-ω-[(4,7,10,13,16,19-hexaoxaecosyldimethylsilyl)oxy]-, polymer with α-hydro-ω-[(1-oxo-2-propenyl)oxy]poly(oxy-1,2-ethanediyl) ether with 2-ethyl-2-(hydroxymethyl)-1,3-propanediol (3:1), α-(2-methyl-1-oxo-2-

propenyl)-ω-hydroxypoly(oxy-1,2-ethanediyl) and α-(2-methyl-1-oxo-2-propenyl)-ω-[(2-methyl-1-oxo-2-propenyl)oxy]poly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

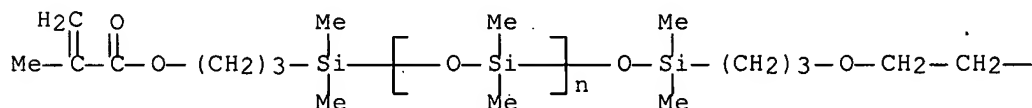
CM 1

CRN 402934-97-8

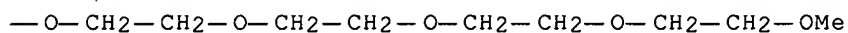
CMF (C2 H6 O Si)_n C25 H52 O9 Si2

CCI PMS

PAGE 1-A



PAGE 1-B



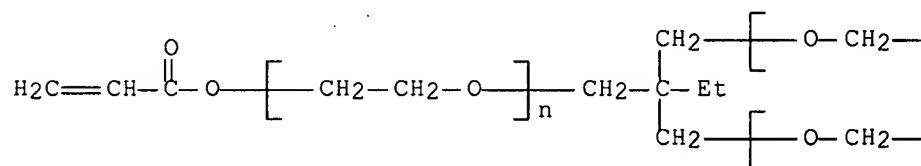
CM 2

CRN 28961-43-5

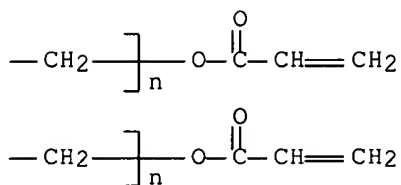
CMF (C2 H4 O)_n (C2 H4 O)_n (C2 H4 O)_n C15 H20 O6

CCI PMS

PAGE 1-A

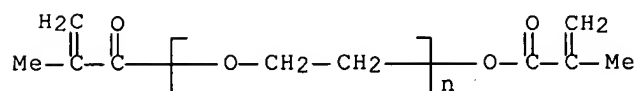


PAGE 1-B



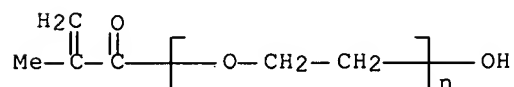
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CRN 25852-47-5
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 CCI PMS

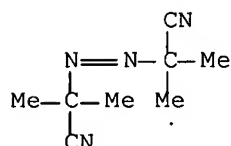


CM 4

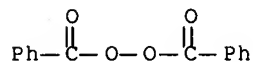
CRN 25736-86-1
 CMF (C2 H4 O)n C4 H6 O2
 CCI PMS



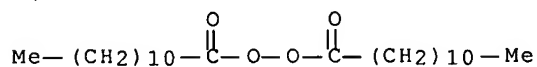
IT 78-67-1, Azobisisobutyronitrile 94-36-0, Benzoyl peroxide, processes 105-74-8, Lauroyl peroxide
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
 (polymerization initiator; gel electrolyte lithium battery with improved safety and reliability)
 RN 78-67-1 HCAPLUS
 CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)]



RN 94-36-0 HCAPLUS
 CN Peroxide, dibenzoyl (CA INDEX NAME)



RN 105-74-8 HCAPLUS
 CN Peroxide, bis(1-oxododecyl) (CA INDEX NAME)



L135 ANSWER 19 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN
 AN 2001:850854 HCAPLUS Full-text
 DN 135:374181
 TI Method of manufacturing a polymer gel electrolyte
 battery or capacitor
 IN Sato, Takaya; Shimizu, Tatsuo
 PA Nisshinbo Industries, Inc., Japan; Itochu Corporation
 SO Eur. Pat. Appl., 24 pp.
 CODEN: EPXXDW
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1156547	A1	20011121	EP 2001-111816	20010515 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2001325991	A	20011122	JP 2000-141687	20000515 <--
	CA 2347408	A1	20011115	CA 2001-2347408	20010511 <--
	US 2002042986	A1	20020418	US 2001-853050	20010511 <--
	US 6793692	B2	20040921		
	SG 100695	A1	20031226	SG 2001-2795	20010511 <--
	CN 1324117	A	20011128	CN 2001-116134	20010515 <--
	TW 512556	B	20021201	TW 2001-90111551	20010515 <--
	EP 1300904	A1	20030409	EP 2003-421	20010515 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, LT, LV, FI, RO, MK, CY, AL, TR				
	US 2004001302	A1	20040101	US 2003-607956	20030627 <--
PRAI	JP 2000-141687	A	20000515	<--	
	US 2001-853050	A3	20010511	<--	
	EP 2001-111816	A3	20010515	<--	
AB	The invention discloses a method for manufacturing an elec. component, in which ions migrate between electrodes and which provides high efficiency. In the method for manufacturing an elec. component, in which ions migrate between electrodes, an ion conductive polymer layer dissolving ions is formed on an electrode material layer of at least one of a pair of electrode structures which comprise an electrode material layer formed on a current collector. The pair of electrode structures are arranged at opposed positions with the current collector facing outward, and this arrangement is accommodated in an accommodation unit, and liquid electrolyte is injected into the accommodation unit.				
IC	ICM H01M0010-40				
	ICS H01M0006-18; H01M0006-22				
CC	52-2 (Electrochemical, Radiational, and Thermal Energy Technology)				
	Section cross-reference(s): 38, 76				
ST	battery polymer gel electrolyte fabrication; capacitor polymer gel electrolyte fabrication				
IT	Polymer electrolytes (gel; method of manufacturing polymer gel electrolyte battery or capacitor)				
IT	Battery electrolytes Capacitors Coating materials Coating process Conducting polymers Grinding (machining)				

Secondary batteries

(method of manufacturing polymer gel electrolyte battery or capacitor)

IT Carbon black, uses

RL: DEV (Device component use); USES (Uses)
(method of manufacturing polymer gel electrolyte battery or capacitor)

IT Isocyanates

RL: MOA (Modifier or additive use); USES (Uses)
(polymers; method of manufacturing polymer gel electrolyte battery or capacitor)

IT Polyoxyalkylenes, uses

RL: MOA (Modifier or additive use); USES (Uses)
(polyol solution containing; method of manufacturing polymer gel electrolyte battery or capacitor)

IT 7440-44-0, Activated carbon, uses

RL: DEV (Device component use); USES (Uses)
(activated, phenol-derived; method of manufacturing polymer gel electrolyte battery or capacitor)

IT 116680-33-2, NC-IM

RL: CAT (Catalyst use); USES (Uses)
(method of manufacturing polymer gel electrolyte battery or capacitor)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate
4419-11-8, 2,2'-Azobis(2,4-dimethyl-valeronitrile) 7429-90-5, Aluminum,
uses 7440-50-8, Copper, uses 7782-42-5, Graphite, uses
7791-03-9, Lithium perchlorate 12190-79-3, Cobalt
lithium oxide colio2 37337-45-4D, cyanoethylated

RL: DEV (Device component use); USES (Uses)
(method of manufacturing polymer gel electrolyte battery or capacitor)

IT 78-67-1, Azobisisobutyronitrile 109-78-4, Ethylene cyanohydrin
3290-92-4, Trimethylolpropane trimethacrylate
9082-00-2, Sannix fa-103 25721-76-0, Polyethylene glycol
dimethacrylate 26915-72-0, Methoxypolyethylene glycol
monomethacrylate

RL: MOA (Modifier or additive use); USES (Uses)
(method of manufacturing polymer gel electrolyte battery or capacitor)

IT 109-99-9, Thf, uses

RL: TEM (Technical or engineered material use); USES (Uses)
(method of manufacturing polymer gel electrolyte battery or capacitor)

IT 75-21-8, Ethylene oxide, uses 25322-68-3, Peo

RL: MOA (Modifier or additive use); USES (Uses)
(polyol solution containing; method of manufacturing polymer gel electrolyte battery or capacitor)

IT 7440-44-0, Activated carbon, uses

RL: DEV (Device component use); USES (Uses)
(activated, phenol-derived; method of manufacturing polymer gel electrolyte battery or capacitor)

RN 7440-44-0 HCAPLUS

CN Carbon (CA INDEX NAME)

C

IT 96-49-1, Ethylene carbonate 7791-03-9, Lithium

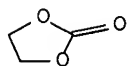
perchlorate 12190-79-3, Cobalt lithium oxide colio2

RL: DEV (Device component use); USES (Uses)

(method of manufacturing **polymer gel electrolyte battery** or capacitor)

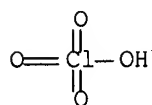
RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 7791-03-9 HCAPLUS

CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)



● Li

RN 12190-79-3 HCAPLUS

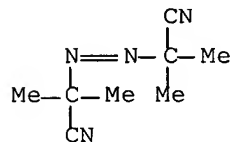
CN Cobalt lithium oxide (CoLiO₂) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Co	1	7440-48-4
Li	1	7439-93-2

IT 78-67-1, Azobisisobutyronitrile 3290-92-4,
Trimethylolpropane trimethacrylate 25721-76-0,
Polyethylene glycol dimethacrylate 26915-72-0,
Methoxypolyethylene glycol monomethacrylate
RL: MOA (Modifier or additive use); USES (Uses)
(method of manufacturing **polymer gel electrolyte battery** or capacitor)

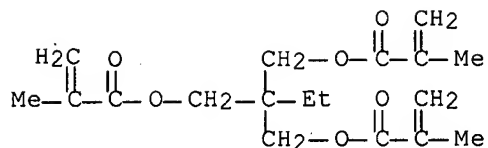
RN 78-67-1 HCAPLUS

CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)



RN 3290-92-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1,1'-[2-ethyl-2-[[2-methyl-1-oxo-2-propen-1-yl)oxy)methyl]-1,3-propanediyl] ester (CA INDEX NAME)



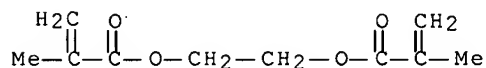
RN 25721-76-0 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1,1'-(1,2-ethanediyl) ester, homopolymer (CA INDEX NAME)

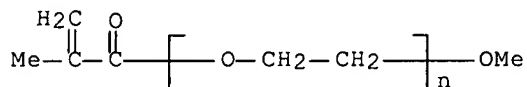
CM 1

CRN 97-90-5

CMF C10 H14 O4



RN 26915-72-0 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), α -(2-methyl-1-oxo-2-propen-1-yl)- ω -methoxy- (CA INDEX NAME)

IT 109-99-9, Thf, uses

RL: TEM (Technical or engineered material use); USES (Uses)
 (method of manufacturing **polymer gel electrolyte**
battery or capacitor)

RN 109-99-9 HCAPLUS

CN Furan, tetrahydro- (CA INDEX NAME)



RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon	1997	1997		PATENT ABSTRACTS OF	
Basf Ag	2000			DE 19830993 A	HCAPLUS
Clericuzio, M	1995	82	179	SOLID STATE IONICS	
Koninkl Philips Electro	1999			WO 9949531 A	HCAPLUS
Nisshinbo Ind Inc	1996			JP 08225626 A	HCAPLUS
Osaka, T	1998	74	122	JOURNAL OF POWER SOU	HCAPLUS
Sony Corp	2000			EP 1041658 A	HCAPLUS

Sony Corporation | 2000 | | | WO 0013252 A | HCAPLUS

L135 ANSWER 20 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2000:861966 HCAPLUS Full-text

DN 134:31200

TI **Polymerizable compound and solid polymer electrolyte** using the same for **batteries** and electrical double layer capacitors

IN Takeuchi, Masataka; Naijo, Shuichi; Ohkubo, Takashi; Nishioka, Ayako; Nishioka, Masaaki

PA Showa Denko K.K., Japan

SO PCT Int. Appl., 122 pp.

CODEN: PIXXD2

DT **Patent**

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000074158	A1	20001207	WO 1999-JP2861	19990528 <--
	W:			AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM	
	RW:			GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG	
	AU 9939566	A1	20001218	AU 1999-39566	19990528 <--
	EP 1110260	A1	20010627	EP 1999-922574	19990528 <--
	R:			AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI	

PRAI WO 1999-JP2861 A 19990528 <--

AB The polymer compound of the invention which contains a poly- or oligo-carbonate group and is preferably obtained by utilizing a polymerization reaction using a polymerizable functional group represented by formula $\text{CH}_2:\text{CR}_2\text{CO}_2$ and/or formula $\text{CH}_2:\text{CR}_3\text{CO}_2(\text{OR}_4)_x\text{NHCO}_2$ ($\text{R}_2, \text{R}_3 = \text{H}$ or $\text{C}_1\text{-6 alkyl}$; $\text{R}_4 =$ an unbranched, branched or cyclic divalent group with 1-10 C atoms, which may also contain a heteroatom; and $x = 1\text{-}10$) exhibits good strength even when it is formed into a thin film and has high ion conductivity and excellent workability. By the use of this **polymer compound**, **solid polymer electrolyte**, **battery** and/or elec. double layer capacitor having high-temperature characteristics and large current characteristics are provided.

IC ICM H01M0006-18

ICS C08G0064-02; C08G0064-42

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 35, 38, 76

ST **battery polymer electrolyte**; capacitor elec double layer **polymer electrolyte**; polycarbonate electrolyte **battery capacitor**

IT **Fluoropolymers**, uses

RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)

(binder; **polymerizable compound and solid polymer electrolyte** using same for **batteries** and elec. double layer capacitors)

IT Capacitors

(double layer; **polymerizable compound and solid polymer electrolyte** using same for **batteries** and elec. double

- layer capacitors)
- IT Secondary batteries
 - (lithium; polymerizable compound and solid polymer electrolyte using same for batteries and elec. double layer capacitors)
- IT Polymerization
 - (oligomerization; polymerizable compound and solid polymer electrolyte using same for batteries and elec. double layer capacitors)
- IT Polymerization
 - (photopolymn.; polymerizable compound and solid polymer electrolyte using same for batteries and elec. double layer capacitors)
- IT Battery electrolytes
 - Conducting polymers
 - Ionic conductivity
 - Polymer electrolytes
 - (polymerizable compound and solid polymer electrolyte using same for batteries and elec. double layer capacitors)
- IT Alkali metal salts
- Carbonaceous materials (technological products)
- Phosphonium compounds
- Quaternary ammonium compounds, uses
 - RL: DEV (Device component use); USES (Uses)
 - (polymerizable compound and solid polymer electrolyte using same for batteries and elec. double layer capacitors)
- IT Polycarbonates, uses
 - RL: DEV (Device component use); POF (Polymer in formulation); RCT (Reactant); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
 - (polymerizable compound and solid polymer electrolyte using same for batteries and elec. double layer capacitors)
- IT Carbon black, uses
 - RL: MOA (Modifier or additive use); USES (Uses)
 - (polymerizable compound and solid polymer electrolyte using same for batteries and elec. double layer capacitors)
- IT Epoxy resins, uses
 - RL: DEV (Device component use); USES (Uses)
 - (seal; polymerizable compound and solid polymer electrolyte using same for batteries and elec. double layer capacitors)
- IT Polyesters, uses
 - RL: TEM (Technical or engineered material use); USES (Uses)
 - (substrate; polymerizable compound and solid polymer electrolyte using same for batteries and elec. double layer capacitors)
- IT Lithium alloy, base
 - RL: DEV (Device component use); USES (Uses)
 - (polymerizable compound and solid polymer electrolyte using same for batteries and elec. double layer capacitors)
- IT 96-49-1DP, Ethylene carbonate, reaction product with polymer containing poly- or oligo-carbonate group 105-58-8DP, Diethyl carbonate, reaction product with polymer containing poly- or oligo-carbonate group 623-53-0DP, Ethyl methyl carbonate, reaction product with polymer containing poly- or oligo-carbonate group

- RL: DEV (Device component use); POF (Polymer in formulation); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(LiPF6-doped; **polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)
- IT 7440-44-0, Activated carbon, uses
RL: DEV (Device component use); USES (Uses)
(activated; **polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)
- IT 24937-79-9, PvdF
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(binder; **polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)
- IT 7631-86-9, Aerosil, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(colloidal; **polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)
- IT 1344-28-1, Aluminum oxide, uses 12304-65-3, Hydrotalcite
RL: DEV (Device component use); USES (Uses)
(composite, with **polymer**; **polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)
- IT 7429-90-5, Aluminum, uses
RL: DEV (Device component use); USES (Uses)
(current collector; **polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)
- IT 429-06-1, Tetraethylammonium tetrafluoroborate 7439-93-2, Lithium, uses
RL: DEV (Device component use); USES (Uses)
(**polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)
- IT 226225-64-5P 312324-99-5P 312325-01-2P 312325-02-3P 312325-03-4P
RL: DEV (Device component use); POF (Polymer in formulation); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(**polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)
- IT 312325-09-0P 312325-10-3P
RL: DEV (Device component use); POF (Polymer in formulation); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(**polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)
- IT 7782-42-5P, Graphite, uses 12190-79-3P, Cobalt lithium oxide colio2
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(**polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)
- IT 29011-12-9P 37248-85-4P 53566-78-2P 312324-98-4P

312325-04-5P 312325-05-6P 312325-06-7P 312325-07-8P
312325-08-9P

RL: POF (Polymer in formulation); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(polymerizable compound and solid polymer electrolyte using same for batteries and elec. double layer capacitors)

IT 94-36-0, Benzoyl peroxide, reactions 107-21-1, Ethylene glycol, reactions 111-46-6, Diethylene glycol, reactions 504-63-2, 1,3-Propanediol 51240-95-0, PEROCTA ND 75980-60-8, 2,4,6-Trimethylbenzoyl diphenylphosphine oxide

RL: RCT (Reactant); RACT (Reactant or reagent)
(polymerizable compound and solid polymer electrolyte using same for batteries and elec. double layer capacitors)

IT 106-75-2P 124-05-0P 17134-17-7P 20215-51-4P 42021-85-2P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(polymerizable compound and solid polymer electrolyte using same for batteries and elec. double layer capacitors)

IT 25038-59-9, Polyethylene terephthalate, uses

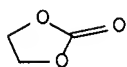
RL: TEM (Technical or engineered material use); USES (Uses)
(substrate; polymerizable compound and solid polymer electrolyte using same for batteries and elec. double layer capacitors)

IT 96-49-1DP, Ethylene carbonate, reaction product with polymer containing poly- or oligo-carbonate group

RL: DEV (Device component use); POF (Polymer in formulation); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(LiPF6-doped; polymerizable compound and solid polymer electrolyte using same for batteries and elec. double layer capacitors)

RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



IT 7440-44-0, Activated carbon, uses

RL: DEV (Device component use); USES (Uses)
(activated; polymerizable compound and solid polymer electrolyte using same for batteries and elec. double layer capacitors)

RN 7440-44-0 HCAPLUS

CN Carbon (CA INDEX NAME)

C

IT 7439-93-2, Lithium, uses

RL: DEV (Device component use); USES (Uses)
(polymerizable compound and solid polymer electrolyte using same for batteries and elec. double layer capacitors)

RN 7439-93-2 HCAPLUS
CN Lithium (CA INDEX NAME)

Li

IT 226225-64-5P 312324-99-5P 312325-01-2P
312325-02-3P 312325-03-4P

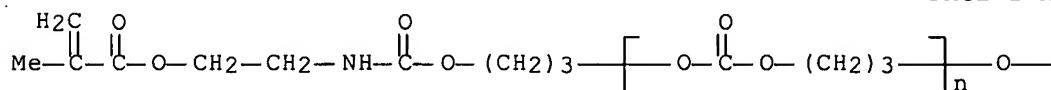
RL: DEV (Device component use); POF (Polymer in formulation); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)

(polymerizable compound and solid polymer electrolyte using same for batteries and elec. double layer capacitors)

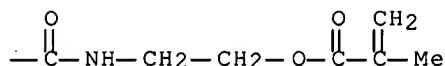
RN 226225-64-5 HCAPLUS

CN Poly(oxycarbonyloxy-1,3-propanediyl), α -[3-[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]propyl]- ω -[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]- (9CI) (CA INDEX NAME)

PAGE 1-A



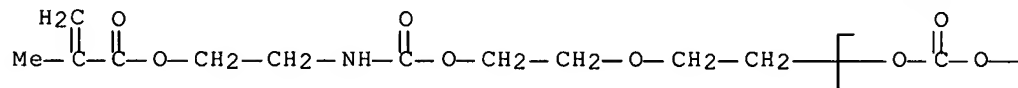
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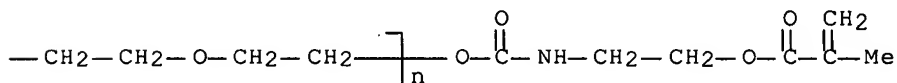
RN 312324-99-5 HCAPLUS

CN Poly(oxycarbonyloxy-1,2-ethanediylloxy-1,2-ethanediyl), α -(13-methyl-7,12-dioxo-3,6,11-trioxa-8-azatetradec-13-en-1-yl)- ω -[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]- (9CI) (CA INDEX NAME)

PAGE 1-A

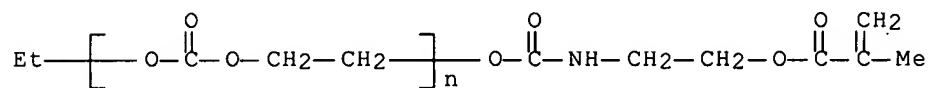


PAGE 1-B



RN 312325-01-2 HCAPLUS

CN Poly(oxycarbonyloxy-1,2-ethanediyl), α -ethyl- ω -[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]- (9CI) (CA INDEX NAME)



RN 312325-02-3 HCAPLUS

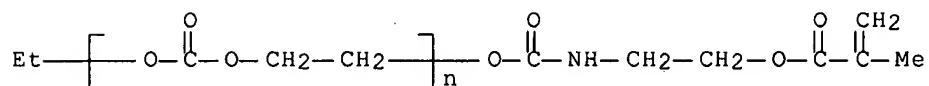
CN Poly(oxycarbonyloxy-1,2-ethanediyl), α -(13-methyl-7,12-dioxo-3,6,11-trioxa-8-azatetradec-13-en-1-yl)- ω -[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]-, polymer with α -ethyl- ω -[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]poly(oxycarbonyloxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

CM 1

CRN 312325-01-2

CMF (C3 H4 O3)_n C9 H15 N O4

CCI PMS

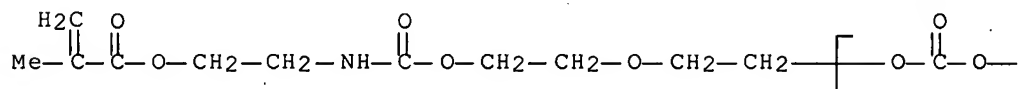


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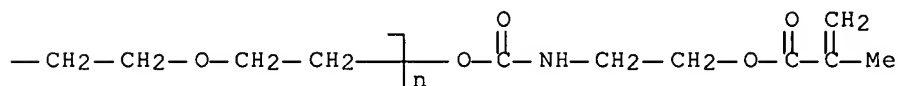
CRN 312324-99-5

CMF (C5 H8 O4)_n C18 H28 N2 O9

CCI PMS



PAGE 1-A



PAGE 1-B

RN 312325-03-4 HCAPLUS

CN Poly(oxycarbonyloxy-1,3-propanediyl), α -[3-[[[2-[(2-methyl-1-oxo-2-

propenyl)oxy]ethyl]amino]carbonyl]oxy]propyl]-ω-[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]-, polymer with
 α-[2-[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]ethyl]-ω-[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]poly(oxycarbonyloxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

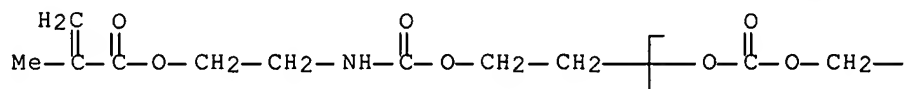
CM 1

CRN 312324-98-4

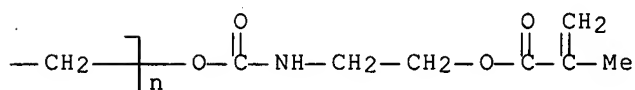
CMF (C3 H4 O3)n C16 H24 N2 O8

CCI PMS

PAGE 1-A



PAGE 1-B



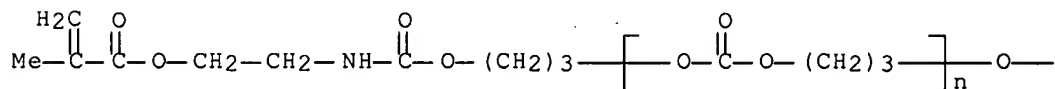
CM 2

CRN 226225-64-5

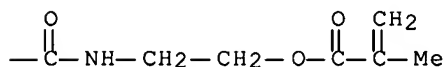
CMF (C4 H6 O3)n C17 H26 N2 O8

CCI PMS

PAGE 1-A



PAGE 1-B



IT 312325-09-0P 312325-10-3P

RL: DEV (Device component use); POF (Polymer in formulation); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (polymerizable compound and solid polymer electrolyte using same for batteries and elec. double layer capacitors)

RN 312325-09-0 HCAPLUS

CN Poly(oxycarbonyloxy-1,2-ethanediyl)oxy-1,2-ethanediyl)oxy-1,2-ethanediyl)oxy-

1,2-ethanediyl), α -(19-methyl-13,18-dioxo-3,6,9,12,16-pentaoxa-14-
 azaeicos-19-en-1-yl)- ω -[[[2-[(2-methyl-1-oxo-2-
 propenyl)oxy]ethyl]amino]carbonyl]oxy]-, polymer with α -ethyl-
 ω -[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]pol
 y(oxycarbonyloxy-1,2-ethanediyl)oxy-1,2-ethanediyl) (9CI)
 (CA INDEX NAME)

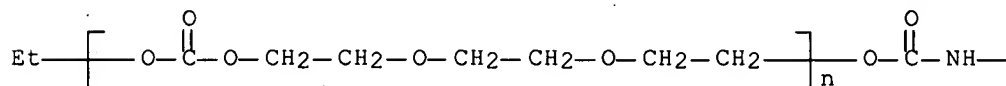
CM 1

CRN 312325-08-9

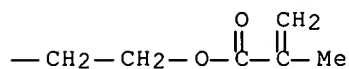
CMF (C7 H12 O5)_n C9 H15 N O4

CCI PMS

PAGE 1-A



PAGE 1-B



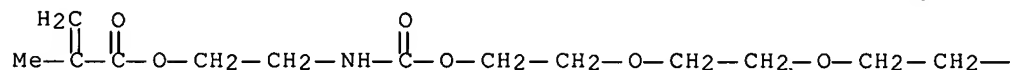
CM 2

CRN 312325-07-8

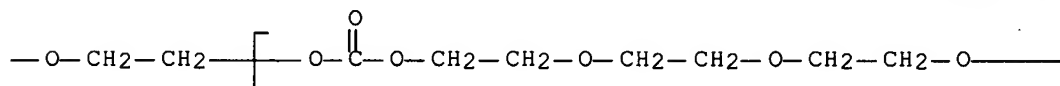
CMF (C9 H16 O6)_n C22 H36 N2 O11

CCI PMS

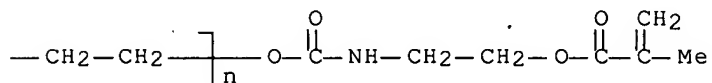
PAGE 1-A



PAGE 1-B



PAGE 1-C

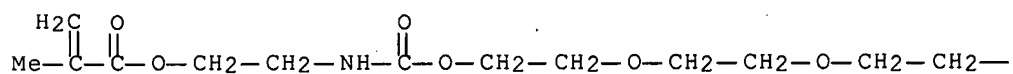


RN 312325-10-3 HCAPLUS
 CN Poly(oxycarbonyloxy-1,2-ethanediylloxy-1,2-ethanediylloxy-1,2-ethanediylloxy-1,2-ethanediyl), α -(19-methyl-13,18-dioxo-3,6,9,12,16-pentaoxa-14-azaicos-19-en-1-yl)- ω -[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]-, polymer with α -(16-methyl-10,15-dioxo-3,6,9,14-tetraoxa-11-azaheptadec-16-en-1-yl)- ω -[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]poly(oxycarbonyloxy-1,2-ethanediylloxy-1,2-ethanediylloxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

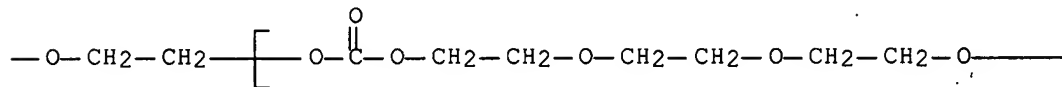
CM 1

CRN 312325-07-8
 CMF (C9 H16 O6)_n C22 H36 N2 O11
 CCI PMS

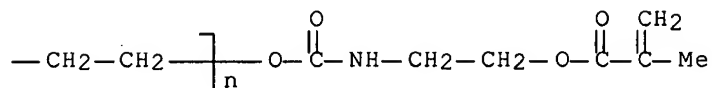
PAGE 1-A



PAGE 1-B



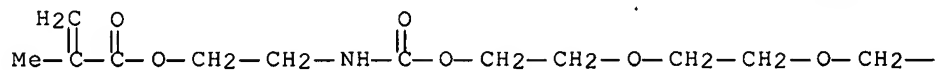
PAGE 1-C



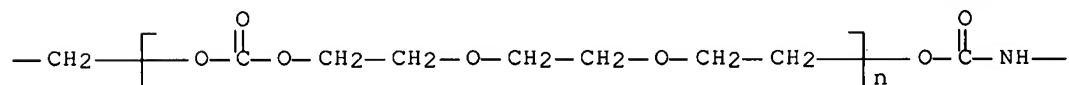
CM 2

CRN 312325-06-7
 CMF (C7 H12 O5)_n C20 H32 N2 O10
 CCI PMS

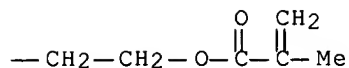
PAGE 1-A



PAGE 1-B



PAGE 1-C

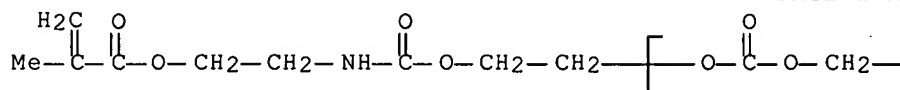


IT 12190-79-3P, Cobalt lithium oxide colio2
 RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (polymerizable compound and solid polymer electrolyte using same for batteries and elec. double layer capacitors)
 RN 12190-79-3 HCAPLUS
 CN Cobalt lithium oxide (CoLiO2) (CA INDEX NAME)

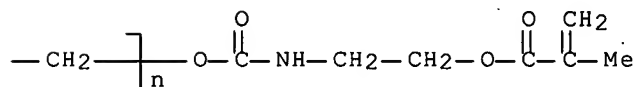
Component	Ratio	Component Registry Number
=====	=====	=====
O	2	17778-80-2
Co	1	7440-48-4
Li	1	7439-93-2

IT 312324-98-4P 312325-06-7P 312325-07-8P
 312325-08-9P
 RL: POF (Polymer in formulation); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
 (polymerizable compound and solid polymer electrolyte using same for batteries and elec. double layer capacitors)
 RN 312324-98-4 HCAPLUS
 CN Poly(oxycarbonyloxy-1,2-ethanediyl), α -[2-[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]ethyl]- ω -[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]- (9CI) (CA INDEX NAME)

PAGE 1-A

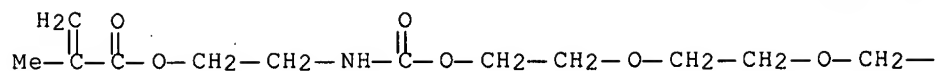


PAGE 1-B

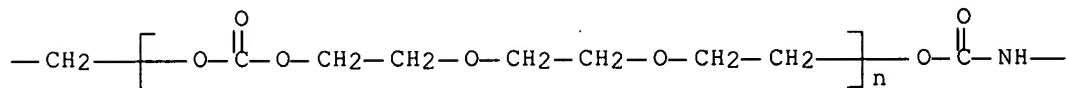


RN 312325-06-7 HCAPLUS
 CN Poly(oxycarbonyloxy-1,2-ethanediylloxy-1,2-ethanediylloxy-1,2-ethanediyl), α -(16-methyl-10,15-dioxo-3,6,9,14-tetraoxa-11-azaheptadec-16-en-1-yl)- ω -[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]- (9CI) (CA INDEX NAME)

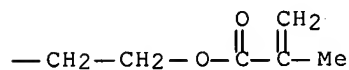
PAGE 1-A



PAGE 1-B



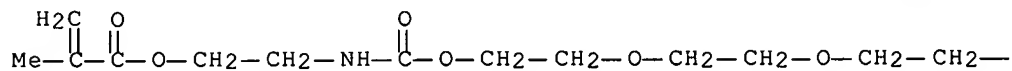
PAGE 1-C



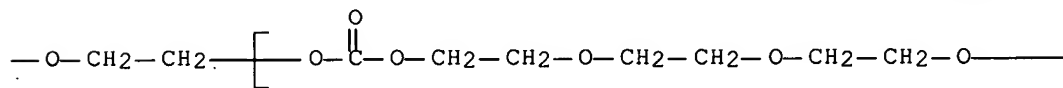
RN 312325-07-8 HCAPLUS

CN Poly(oxy carbonyloxy-1,2-ethanediyl oxy-1,2-ethanediyl oxy-1,2-ethanediyl oxy-1,2-ethanediyl), α -(19-methyl-13,18-dioxo-3,6,9,12,16-pentaoxa-14-azaeicos-19-en-1-yl)- ω -[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]- (9CI) (CA INDEX NAME)

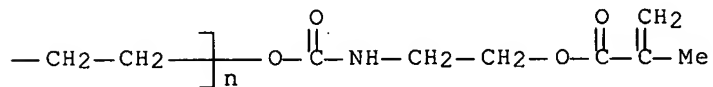
PAGE 1-A



PAGE 1-B



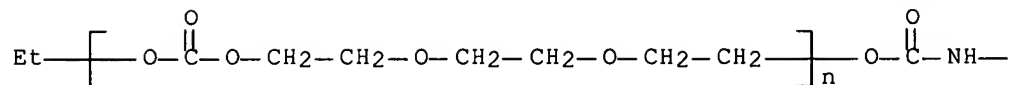
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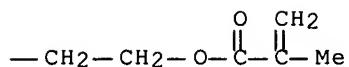
RN 312325-08-9 HCAPLUS

CN Poly(oxy carbonyloxy-1,2-ethanediyl oxy-1,2-ethanediyl oxy-1,2-ethanediyl), α -ethyl- ω -[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]- (9CI) (CA INDEX NAME)

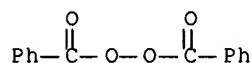
PAGE 1-A



PAGE 1-B



IT 94-36-0, Benzoyl peroxide, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (polymerizable compound and solid polymer
 electrolyte using same for batteries and elec. double
 layer capacitors)
 RN 94-36-0 HCAPLUS
 CN Peroxide, dibenzoyl (CA INDEX NAME)



RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Mitsui Chem Inc	1999			JP 11140176 A	HCAPLUS
Nippon Oil Co Ltd	1996			JP 08295715 A	HCAPLUS
Takeuchi, M	1997			US 5597661 A	

L135 ANSWER 21 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2000:819240 HCAPLUS Full-text

DN 133:351062

TI Covalently and physically crosslinked polymer network
 polyelectrolytes and production method thereof

IN Yamamoto, Toru; Murata, Toshihide

PA Matsushita Electric Industrial Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2000319531	A	20001121	JP 1999-134821	19990514 <--
PRAI JP 1999-134821		19990514	<--	

AB Title polyelectrolytes comprise covalently and phys. crosslinked polymer networks and charge carriers and are useful for nonaq. electrolyte secondary batteries. Thus, a thermosetting resin precursor comprising oligomeric epoxy resin acrylate 50, pentaerythritol triacrylate 8, and benzoyl peroxide 2 part was mixed with 5 parts acrylonitrile-methacrylic acid copolymer (mol ratio 97:3) 15, LiBF₄ 20, ethylene carbonate 100, and propylene carbonate 50 parts and cured at 120° for 60 min between two stainless steel plates to give a

polyelectrolyte giving a lithium battery with good heat resistance and high-rate discharge and capacity retaining characteristics.

IC ICM C08L0101-16

ICS C08J0007-00; H01B0001-06; H01M0010-40

CC 37-6 (Plastics Manufacture and Processing)

Section cross-reference(s): 52

ST polyelectrolyte covalently phys crosslinked nonaq secondary battery

IT Epoxy resins, preparation

RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer in formulation); PREP (Preparation); USES (Uses)
(acrylates, alicyclic, crosslinked with pentaerythritol triacrylate; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)

IT Epoxy resins, preparation

RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer in formulation); PREP (Preparation); USES (Uses)
(crosslinked with pentaerythritol triacrylate; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)

IT Secondary batteries

(lithium; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)

IT Polyurethanes, preparation

RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer in formulation); PREP (Preparation); USES (Uses)
(polyester-, acrylic; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)

IT Polyesters, preparation

RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer in formulation); PREP (Preparation); USES (Uses)
(polymers with acrylic acid hydroxy derivs. and tolylene diisocyanate; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)

IT Battery electrolytes

Crosslinking catalysts

Electrolytes

Polyelectrolytes

(preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)

IT Fluoropolymers, uses

Polyoxyalkylenes, uses

RL: DEV (Device component use); POF (Polymer in formulation); USES (Uses)
(preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)

IT Interpenetrating polymer networks

(semi-interpenetrating; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)

IT Plastics, uses

RL: DEV (Device component use); POF (Polymer in formulation); USES (Uses)
(thermoplastics; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)

IT Plastics, uses

RL: DEV (Device component use); POF (Polymer in formulation); USES (Uses)
(thermosetting; preparation of covalently and phys. crosslinked

polymer network polyelectrolytes useful for
batteries)

IT 3524-68-3

RL: MOA (Modifier or additive use); USES (Uses)
(crosslinking agent; preparation of covalently and phys. crosslinked
polymer network polyelectrolytes useful for
batteries)

IT 94-36-0, Benzoyl peroxide, uses 3849-34-1, Butyl peroxide
24650-42-8

RL: CAT (Catalyst use); USES (Uses)
(crosslinking catalyst; preparation of covalently and phys. crosslinked
polymer network polyelectrolytes useful for
batteries)

IT 14283-07-9, Lithium tetrafluoroborate 21324-40-3,
Lithium hexafluorophosphate 90076-65-6 155812-81-0

RL: DEV (Device component use); USES (Uses)
(electrolyte; preparation of covalently and phys. crosslinked
polymer network polyelectrolytes useful for
batteries)

IT 96-49-1, Ethylene carbonate 108-32-7, Propylene
carbonate 616-38-6, Dimethyl carbonate

RL: DEV (Device component use); USES (Uses)
(polar solvent; preparation of covalently and phys. crosslinked
polymer network polyelectrolytes useful for
batteries)

IT 79-10-7DP, Acrylic acid, esters, polymers
79-41-4DP, Methacrylic acid, esters, polymers
with pentaerythritol triacrylate 3524-68-3DP,
Pentaerythritol triacrylate, polymers with (meth)
acrylates 26471-62-5DP, Tolyene diisocyanate, polymers
with acrylic acid hydroxy derivs. and polyesters
101465-21-8P 129914-67-6P, Polyethylene glycol
diacrylate-trimethylolpropane triacrylate
copolymer 305834-74-6P 305834-75-7P

RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer
in formulation); PREP (Preparation); USES (Uses)
(preparation of covalently and phys. crosslinked polymer network
polyelectrolytes useful for batteries)

IT 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer
24937-79-9, Poly(vinylidene fluoride) 24980-62-9, Acrylonitrile
-vinyl acetate copolymer 25014-41-9, Acrylonitrile
homopolymer 25214-69-1, Acrylic acid-
acrylonitrile copolymer 25322-68-3 25749-57-9
, Acrylonitrile-methacrylic acid copolymer
26778-26-7, Acrylamide-ethylene oxide copolymer

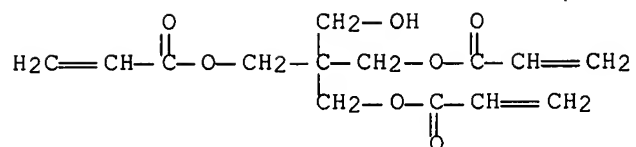
RL: DEV (Device component use); POF (Polymer in formulation); USES (Uses)
(preparation of covalently and phys. crosslinked polymer network
polyelectrolytes useful for batteries)

IT 3524-68-3

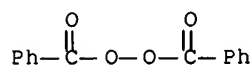
RL: MOA (Modifier or additive use); USES (Uses)
(crosslinking agent; preparation of covalently and phys. crosslinked
polymer network polyelectrolytes useful for
batteries)

RN 3524-68-3 HCAPLUS

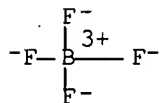
CN 2-Propenoic acid, 1,1'-[2-(hydroxymethyl)-2-[[1-(1-oxo-2-propen-1-
yl)oxy]methyl]-1,3-propanediyl] ester (CA INDEX NAME)



IT 94-36-0, Benzoyl peroxide, uses
 RL: CAT (Catalyst use); USES (Uses)
 (crosslinking catalyst; preparation of covalently and phys. crosslinked
 polymer network polyelectrolytes useful for
 batteries)
 RN 94-36-0 HCAPLUS
 CN Peroxide, dibenzoyl (CA INDEX NAME)

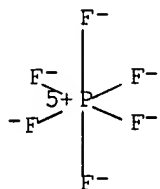


IT 14283-07-9, Lithium tetrafluoroborate 21324-40-3,
 Lithium hexafluorophosphate 90076-65-6 155812-81-0
 RL: DEV (Device component use); USES (Uses)
 (electrolyte; preparation of covalently and phys. crosslinked
 polymer network polyelectrolytes useful for
 batteries)
 RN 14283-07-9 HCAPLUS
 CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



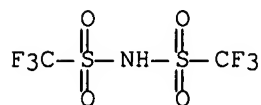
● Li⁺

RN 21324-40-3 HCAPLUS
 CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



● Li⁺

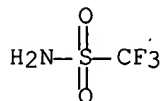
RN 90076-65-6 HCAPLUS

CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-,
lithium salt (1:1) (CA INDEX NAME)

● Li

RN 155812-81-0 HCAPLUS

CN Methanesulfonamide, 1,1,1-trifluoro-, lithium salt (1:1) (CA INDEX NAME)



● Li

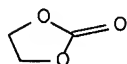
IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate

RL: DEV (Device component use); USES (Uses)

(polar solvent; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)

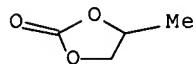
RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 108-32-7 HCAPLUS

CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



IT 79-10-7DP, Acrylic acid, esters, polymers

79-41-4DP, Methacrylic acid, esters, polymers

with pentaerythritol triacrylate 3524-68-3DP,

Pentaerythritol triacrylate, polymers with (meth)

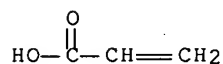
acrylates 101465-21-8P 129914-67-6P,

Polyethylene glycol diacrylate-trimethylolpropane

triacrylate copolymer 305834-74-6P

305834-75-7P

RN 79-10-7 HCAPLUS
CN 2-Propenoic acid (CA INDEX NAME)

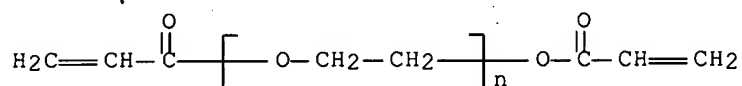
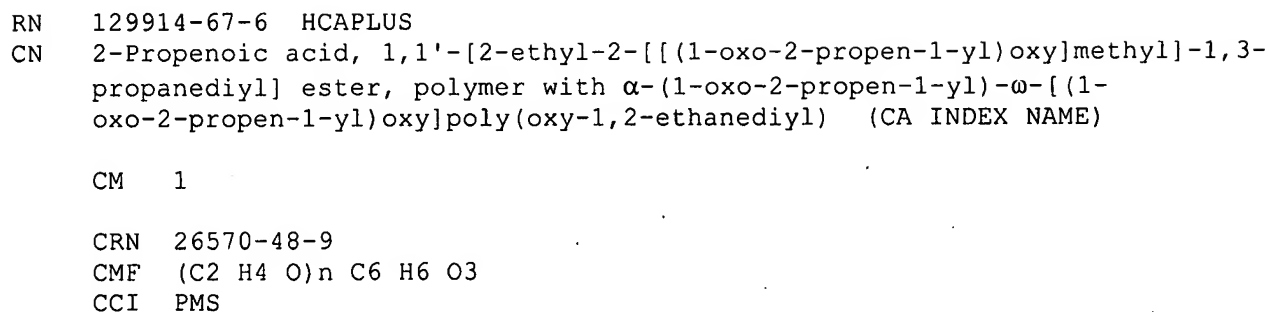

$$\text{Me}-\overset{\text{CH}_2}{\underset{\parallel}{\text{C}}}-\text{CO}_2\text{H}$$
$$\begin{array}{c} \text{H}_2\text{C}=\text{CH}-\overset{\text{O}}{\parallel}\text{C}-\text{O}-\text{CH}_2-\left[\begin{array}{l} \text{CH}_2-\text{OH} \\ | \\ \text{CH}_2-\text{O}-\overset{\text{O}}{\parallel}\text{C}-\text{CH}=\text{CH}_2 \\ | \\ \text{CH}_2-\text{O}-\underset{\text{O}}{\parallel}\text{C}-\text{CH}=\text{CH}_2 \end{array} \right]_n \end{array}$$

CM 1

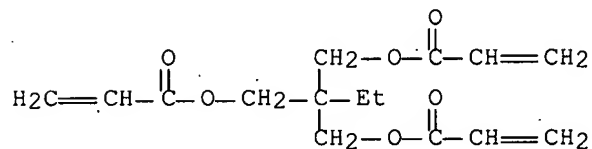
$$\begin{array}{c} \text{H}_2\text{C}=\text{CH}-\overset{\text{O}}{\parallel}\text{C}-\text{O}-\text{CH}_2-\left[\begin{array}{l} \text{CH}_2-\text{OH} \\ | \\ \text{CH}_2-\text{O}-\overset{\text{O}}{\parallel}\text{C}-\text{CH}=\text{CH}_2 \\ | \\ \text{CH}_2-\text{O}-\underset{\text{O}}{\parallel}\text{C}-\text{CH}=\text{CH}_2 \end{array} \right]_n \end{array}$$

CM 2

CRN 107-13-1
CMF C3 H3 N



CRN 15625-89-5
CMF C15 H20 O6



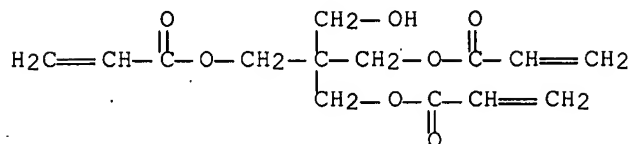
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RN      305834-74-6  HCAPLUS
CN      2-Propenoic acid, 2-(hydroxymethyl)-2-[[ (1-oxo-2-propenyl)oxy]methyl]-1,3-
        propanediyl ester, polymer with oxirane (9CI)  (CA INDEX NAME)

CM      1

CRN     3524-68-3
CMF     C14 H18 O7

```



CM 2

CM 1

$$\begin{array}{c} \text{H}_2\text{C}=\text{CH}-\overset{\text{O}}{\parallel}\text{C}-\text{O}-\text{CH}_2-\left[\begin{array}{l} \text{CH}_2-\text{OH} \\ | \\ \text{CH}_2-\text{O}-\overset{\text{O}}{\parallel}\text{C}-\text{CH}=\text{CH}_2 \\ | \\ \text{CH}_2-\text{O}-\underset{\text{O}}{\parallel}\text{C}-\text{CH}=\text{CH}_2 \end{array} \right]_n \end{array}$$

CM 2

CM 3

CRN 124-09-4
CMF C6 H16 N2

$$\text{H}_2\text{N}-(\text{CH}_2)_6-\text{NH}_2$$

CM 4

CRN 124-04-9
CMF C6 H10 O4.

$$\text{HO}_2\text{C}-(\text{CH}_2)_4-\text{CO}_2\text{H}$$

IT 25214-69-1, Acrylic acid-acrylonitrile
copolymer 25749-57-9, Acrylonitrile-
methacrylic acid copolymer
RL: DEV (Device component use); POF (Polymer in formulation); USES (Uses)

(preparation of covalently and phys. crosslinked polymer network
polyelectrolytes useful for batteries)

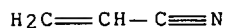
RN 25214-69-1 HCAPLUS

CN 2-Propenoic acid, polymer with 2-propenenitrile (CA INDEX NAME)

CM 1

CRN 107-13-1

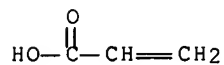
CMF C3 H3 N



CM 2

CRN 79-10-7

CMF C3 H4 O2



RN 25749-57-9 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with 2-propenenitrile (CA INDEX NAME)

CM 1

CRN 107-13-1

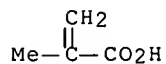
CMF C3 H3 N



CM 2

CRN 79-41-4

CMF C4 H6 O2



L135 ANSWER 22 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2000:686820 HCAPLUS Full-text

DN 133:284087

TI High polymer solid electrolyte, its manufacture and
electrochemical device

IN Amanokura, Hitoshi; Uehara, Hideaki; Watanabe, Masayoshi
 PA Hitachi Chemical Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 11 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000268871	A	20000929	JP 1999-75423	19990319 <--
PRAI	JP 1999-75423		19990319	<--	

AB The high polymer solid electrolyte is a film, composed of electrolyte and ion conductive polymer, and contains electron conductive compds. in gradient distribution in the direction of thickness. The electrolyte is LiClO₄, LiBF₄, LiPF₆, or LiN(CF₃SO₂)₂, the ion conductive high polymer has alkylene oxide repeating units, and the electron conductive high polymer is polypyrrole or its derivative. The electron conductive high polymer is formed by electrolysis polymerization of the monomers in the solid electrolyte. The high polymer solid electrolyte is used for manufacture of electrochem. devices.

IC ICM H01M0010-40

ICS C08K0003-24; C08K0003-30; C08K0003-32; C08K0003-38; C08L0065-00;
 C08L0071-02; C08L0101-12; H01B0001-06

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST high polymer solid electrolyte electrochem device

IT Electric apparatus

(electrochem.; high polymer solid electrolyte, its manufacture and electrochem. device)

IT Polymer electrolytes

Solid electrolytes

(high polymer solid electrolyte, its manufacture and electrochem. device)

IT Polyoxyalkylenes, uses

RL: TEM (Technical or engineered material use); USES (Uses)
 (with unsatd. terminal groups; high polymer solid electrolyte, its manufacture and electrochem. device)

IT 78-67-1, Azobisisobutyronitrile 80-43-3, Cumyl peroxide
 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 110-02-1, Thiophene 111-77-3, Diethylene glycol methyl ether 119-61-9, Benzophenone, uses 3290-92-4, Trimethylolpropanetrimethacrylate 6175-45-7, 2,2-Diethoxyacetophenone 7791-03-9, Lithium perchlorate 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 60506-81-2, Dipentaerythritol pentaacrylate 89377-19-5, Poly(3-methylpyrrole) 90076-65-6

RL: TEM (Technical or engineered material use); USES (Uses)
 (high polymer solid electrolyte, its manufacture and electrochem. device)

IT 25322-68-3, Polyethylene oxide

RL: TEM (Technical or engineered material use); USES (Uses)
 (with unsatd. terminal groups; high polymer solid electrolyte, its manufacture and electrochem. device)

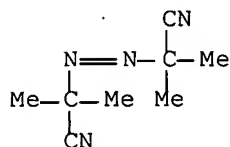
IT 78-67-1, Azobisisobutyronitrile 80-43-3, Cumyl peroxide
 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 110-02-1, Thiophene 3290-92-4, Trimethylolpropanetrimethacrylate 7791-03-9, Lithium perchlorate 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 60506-81-2,

Dipentaerythritol pentaacrylate 90076-65-6

RL: TEM (Technical or engineered material use); USES (Uses)
(high polymer solid electrolyte, its manufacture and
electrochem. device)

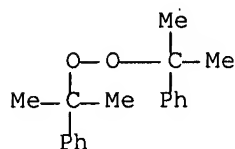
RN 78-67-1 HCAPLUS

CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)



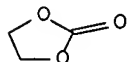
RN 80-43-3 HCAPLUS

CN Peroxide, bis(1-methyl-1-phenylethyl) (CA INDEX NAME)



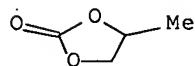
RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 108-32-7 HCAPLUS

CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



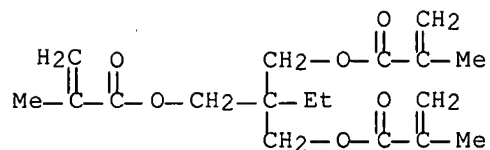
RN 110-02-1 HCAPLUS

CN Thiophene (CA INDEX NAME)



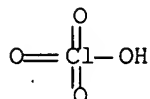
RN 3290-92-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1,1'-[2-ethyl-2-[(2-methyl-1-oxo-2-propen-1-yl)oxy]methyl]-1,3-propanediyl] ester (CA INDEX NAME)



RN 7791-03-9 HCAPLUS

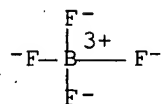
CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)



● Li

RN 14283-07-9 HCAPLUS

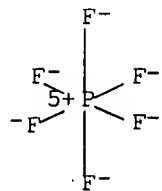
CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



● Li⁺

RN 21324-40-3 HCAPLUS

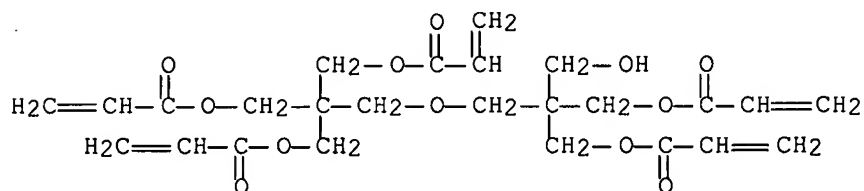
CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



● Li⁺

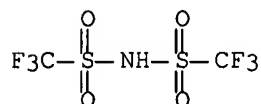
RN 60506-81-2 HCAPLUS

CN 2-Propenoic acid, 1,1'-[2-[[[3-hydroxy-2,2-bis[[[(1-oxo-2-propen-1-yl)oxy]methyl]propoxy]methyl]-2-[[[(1-oxo-2-propen-1-yl)oxy]methyl]-1,3-propanediyl] ester (CA INDEX NAME)



RN 90076-65-6 HCAPLUS

CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



● Li

L135 ANSWER 23 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2000:54126 HCAPLUS Full-text

DN 132:110584

TI Solid polymer electrolyte and preparation methods.

IN Sanchez, Jean-Yves; Alloin, Fannie

PA Institut National Polytechnique de Grenoble, Fr.

SO PCT Int. Appl., 42 pp.

CODEN: PIXXD2

DT Patent

LA French

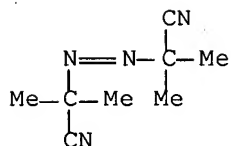
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000003449	A2	20000120	WO 1999-FR1680	19990709 <--
	WO 2000003449	A3	20000413		
	W: CA, JP, US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	FR 2781932	A1	20000204	FR 1998-9385	19980710 <--
	FR 2781932	B1	20000901		
	CA 2302825	A1	20000120	CA 1999-2302825	19990709 <--
	EP 1018181	A2	20000712	EP 1999-929459	19990709 <--
	EP 1018181	B1	20061004		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, CY				
	JP 2002520786	T	20020709	JP 2000-559608	19990709 <--
	AT 341840	T	20061015	AT 1999-929459	19990709 <--
	US 6822065	B1	20041123	US 2000-508378	20000602 <--
PRAI	FR 1998-9385	A	19980710	<--	
	WO 1999-FR1680	W	19990709	<--	

AB The invention concerns a solid polymer electrolyte which comprises ≥ 1 methacrylonitrile polymer in the form: of a linear homopolymer with strong mass, reinforced or not; or a homopolymer, reinforced or not, made 3-dimensional by crosslinking; or a linear copolymer with strong mass or made 3-dimensional by crosslinking, in particular by incorporation of ≥ 1

crosslinkable comonomer. The invention is useful in production of batteries, high-load capacitors, and electrochrome systems.

- IC ICM H01M0010-40
ICS C08F0020-44
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- ST solid polymer electrolyte lithium battery;
elec capacitor solid polymer electrolyte;
electrochrome system solid polymer electrolyte
- IT Primary batteries
Secondary batteries
(lithium; solid polymer electrolyte for)
- IT Capacitors
(solid polymer electrolyte for)
- IT Electrolytes
(solid polymer electrolyte for
batteries, elec. capacitors, and electrochrome systems)
- IT 78-67-1, Azobisisobutyronitrile 24650-42-8, Irgacure I 651
RL: CAT (Catalyst use); USES (Uses)
(catalyst in solid polymer electrolyte)
- IT 110-26-9
RL: CAT (Catalyst use); USES (Uses)
(crosslinking agent in solid polymer electrolyte)
- IT 255875-17-3 774209-62-0 845828-65-1
RL: TEM (Technical or engineered material use); USES (Uses)
(diblock and triblock; in solid polymer electrolyte
)
- IT 126-98-7 7631-86-9, Silica, uses 25067-61-2,
Polymethacrylonitrile 33825-95-5 33897-34-6,
Hydroxyethyl methacrylate-methacrylonitrile
copolymer 33961-16-9, Methacrylonitrile-styrene
copolymer 54474-20-3, Glycidyl methacrylate-
methacrylonitrile copolymer 87105-87-1
93058-88-9 154588-16-6 155620-12-5 157016-02-9
255875-12-8 255875-13-9 255875-14-0
255875-15-1 255875-16-2 255875-18-4
255875-19-5 255875-20-8 255875-21-9
255875-22-0 255875-23-1
RL: TEM (Technical or engineered material use); USES (Uses)
(in solid polymer electrolyte)
- IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene
carbonate 108-32-7, Propylene carbonate 110-71-4
7791-03-9 14283-07-9, Lithium tetrafluoroborate
18424-17-4, Lithium hexafluoroantimonate 21324-40-3,
Lithium hexafluorophosphate 29935-35-1; Lithium
hexafluoroarsenate
RL: TEM (Technical or engineered material use); USES (Uses)
(solvent in solid polymer electrolyte)
- IT 78-67-1, Azobisisobutyronitrile
RL: CAT (Catalyst use); USES (Uses)
(catalyst in solid polymer electrolyte)
- RN 78-67-1 HCAPLUS
- CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)



IT 33897-34-6, Hydroxyethyl methacrylate-methacrylonitrile copolymer 54474-20-3, Glycidyl methacrylate-methacrylonitrile copolymer 87105-87-1 154588-16-6 155620-12-5 157016-02-9 255875-12-8 255875-13-9 255875-14-0 255875-15-1 255875-16-2 255875-18-4 255875-19-5 255875-20-8 255875-21-9 255875-22-0 255875-23-1

RL: TEM (Technical or engineered material use); USES (Uses) (in solid polymer electrolyte)

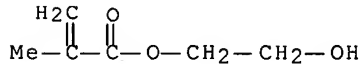
RN 33897-34-6 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, polymer with 2-methyl-2-propenenitrile (9CI) (CA INDEX NAME)

CM 1

CRN 868-77-9

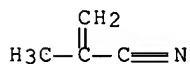
CMF C6 H10 O3



CM 2

CRN 126-98-7

CMF C4 H5 N



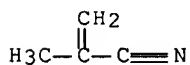
RN 54474-20-3 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, oxiranylmethyl ester, polymer with 2-methyl-2-propenenitrile (9CI) (CA INDEX NAME)

CM 1

CRN 126-98-7

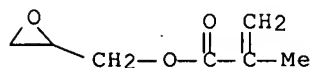
CMF C4 H5 N



CM 2

CRN 106-91-2

CMF C7 H10 O3



RN 87105-87-1 HCAPLUS

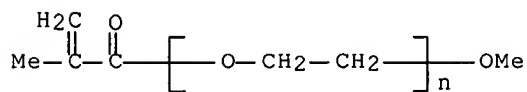
CN Poly(oxy-1,2-ethanediyl), α -(2-methyl-1-oxo-2-propen-1-yl)- ω -methoxy-, homopolymer (CA INDEX NAME)

CM 1

CRN 26915-72-0

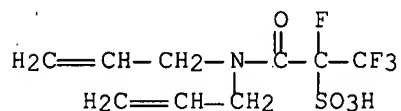
CMF (C2 H4 O)_n C5 H8 O2

CCI PMS



RN 154588-16-6 HCAPLUS

CN 2-Propanesulfonic acid, 3-(di-2-propenylamino)-1,1,1,2-tetrafluoro-3-oxo-, lithium salt (9CI) (CA INDEX NAME)



● Li

RN 155620-12-5 HCAPLUS

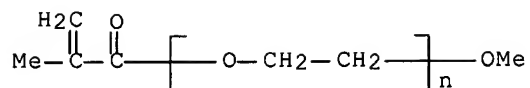
CN 2-Propenenitrile, 2-methyl-, polymer with α -(2-methyl-1-oxo-2-propenyl)- ω -methoxypoly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

CM 1

CRN 26915-72-0

CMF (C2 H4 O)_n C5 H8 O2

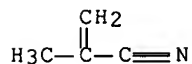
CCI PMS



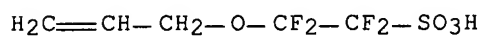
CM 2

GRN 126-98-7

CMF C4 H5 N



RN 157016-02-9 HCAPLUS

CN Ethanesulfonic acid, 1,1,2,2-tetrafluoro-2-(2-propenyloxy)-, lithium salt
(9CI) (CA INDEX NAME)

● Li

RN 255875-12-8 HCAPLUS

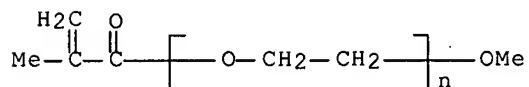
CN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, polymer with
α-(2-methyl-1-oxo-2-propenyl)-ω-methoxypoly(oxy-1,2-ethanediyl) and 2-methyl-2-propenenitrile (9CI) (CA INDEX NAME)

CM 1

CRN 26915-72-0

CMF (C2 H4 O)_n C5 H8 O2

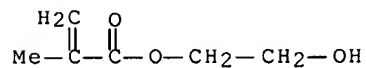
CCI PMS



CM 2

CRN 868-77-9

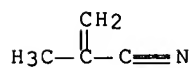
CMF C6 H10 O3



CM 3

CRN 126-98-7

CMF C4 H5 N



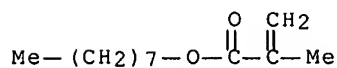
RN 255875-13-9 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, polymer with
2-methyl-2-propenenitrile and octyl 2-methyl-2-propenoate (9CI) (CA INDEX
NAME)

CM 1

CRN 2157-01-9

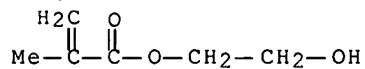
CMF C12 H22 O2



CM 2

CRN 868-77-9

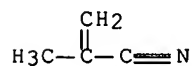
CMF C6 H10 O3



CM 3

CRN 126-98-7

CMF C4 H5 N

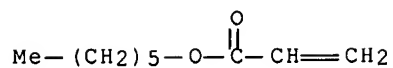


RN 255875-14-0 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, polymer with hexyl
2-propenoate and 2-methyl-2-propenenitrile (9CI) (CA INDEX NAME)

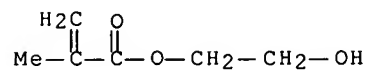
CM 1

CRN 2499-95-8
CMF C9 H16 O2



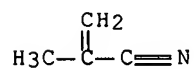
CM 2

CRN 868-77-9
CMF C6 H10 O3



CM 3

CRN 126-98-7
CMF C4 H5 N

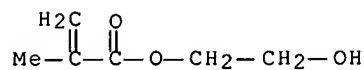


RN 255875-15-1 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, butyl ester, polymer with 2-hydroxyethyl
2-methyl-2-propenoate and 2-methyl-2-propenenitrile (9CI) (CA INDEX NAME)

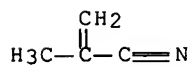
CM 1

CRN 868-77-9
CMF C6 H10 O3



CM 2

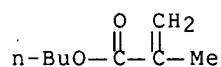
CRN 126-98-7
CMF C4 H5 N



CM 3

CRN 97-88-1

CMF C8 H14 O2



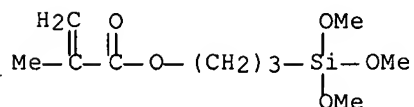
RN 255875-16-2 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-(trimethoxysilyl)propyl ester, polymer with 2-methyl-2-propenenitrile (9CI) (CA INDEX NAME)

CM 1

CRN 2530-85-0

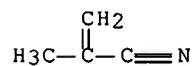
CMF C10 H20 O5 Si



CM 2

CRN 126-98-7

CMF C4 H5 N



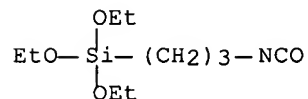
RN 255875-18-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, polymer with 2-methyl-2-propenenitrile and triethoxy(3-isocyanatopropyl)silane (9CI) (CA INDEX NAME)

CM 1

CRN 24801-88-5

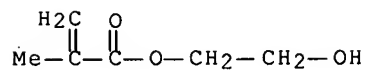
CMF C10 H21 N O4 Si



CM 2

CRN 868-77-9

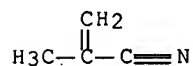
CMF C6 H10 O3



CM 3

CRN 126-98-7

CMF C4 H5 N



RN 255875-19-5 HCAPLUS

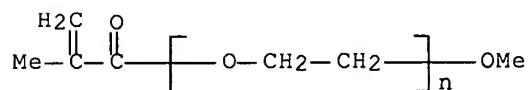
CN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, polymer with
1,6-diisocyanatohexane, α -(2-methyl-1-oxo-2-propenyl)- ω -
methoxypoly(oxy-1,2-ethanediyl) and 2-methyl-2-propenenitrile (9CI) (CA
INDEX NAME)

CM 1

CRN 26915-72-0

CMF (C2 H4 O)_n C5 H8 O2

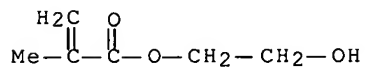
CCI PMS



CM 2

CRN 868-77-9

CMF C6 H10 O3



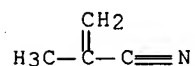
CM 3

CRN 822-06-0
CMF C8 H12 N2 O2

OCN—(CH₂)₆—NCO

CM 4

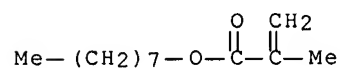
CRN 126-98-7
CMF C4 H5 N



RN 255875-20-8 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, polymer with
1,6-diisocyanatohexane, 2-methyl-2-propenenitrile and octyl
2-methyl-2-propenoate (9CI) (CA INDEX NAME)

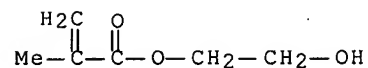
CM 1

CRN 2157-01-9
CMF C12 H22 O2



CM 2

CRN 868-77-9
CMF C6 H10 O3



CM 3

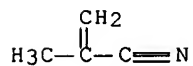
CRN 822-06-0
CMF C8 H12 N2 O2

OCN—(CH₂)₆—NCO

CM 4

CRN 126-98-7

CMF C4 H5 N



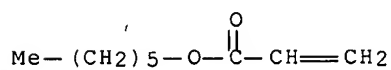
RN 255875-21-9 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, polymer with
1,6-diisocyanatohexane, hexyl 2-propenoate and 2-methyl-2-propenenitrile
(9CI) (CA INDEX NAME)

CM 1

CRN 2499-95-8

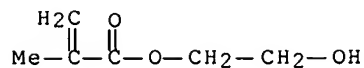
CMF C9 H16 O2



CM 2

CRN 868-77-9

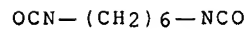
CMF C6 H10 O3



CM 3

CRN 822-06-0

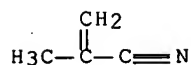
CMF C8 H12 N2 O2



CM 4

CRN 126-98-7

CMF C4 H5 N



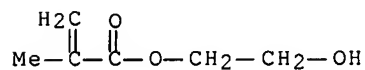
RN 255875-22-0 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, polymer with
1,6-diisocyanatohexane and 2-methyl-2-propenenitrile (9CI) (CA INDEX
NAME)

CM 1

CRN 868-77-9

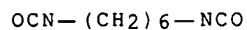
CMF C6 H10 O3



CM 2

CRN 822-06-0

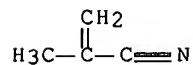
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CM 3

CRN 126-98-7

CMF C4 H5 N



RN 255875-23-1 HCAPLUS

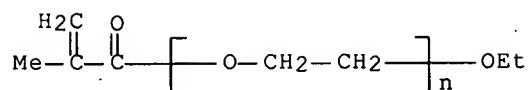
CN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, polymer with
 α -(2-methyl-1-oxo-2-propenyl)- ω -ethoxypoly(oxy-1,2-ethanediyl)
and 2-methyl-2-propenenitrile (9CI) (CA INDEX NAME)

CM 1

CRN 35625-93-5

CMF (C2 H4 O)_n C6 H10 O2

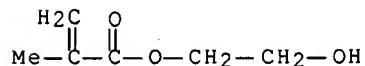
CCI PMS



CM 2

CRN 868-77-9

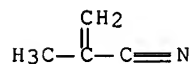
CMF C6 H10 O3



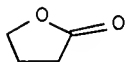
CM 3

CRN 126-98-7

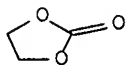
CMF C4 H5 N



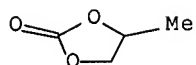
IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 7791-03-9, 14283-07-9, Lithium tetrafluoroborate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate
 RL: TEM (Technical or engineered material use); USES (Uses)
 (solvent in solid polymer electrolyte)
 RN 96-48-0 HCAPLUS
 CN 2(3H)-Furanone, dihydro- (CA INDEX NAME)



RN 96-49-1 HCAPLUS
 CN 1,3-Dioxolan-2-one (CA INDEX NAME)

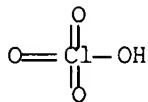


RN 108-32-7 HCAPLUS
 CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



RN 7791-03-9 HCAPLUS

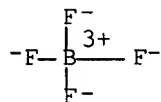
CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)



● Li

RN 14283-07-9 HCAPLUS

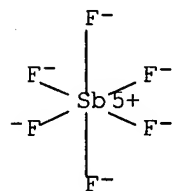
CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



● Li⁺

RN 18424-17-4 HCAPLUS

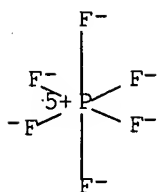
CN Antimonate(1-), hexafluoro-, lithium (1:1), (OC-6-11)- (CA INDEX NAME)



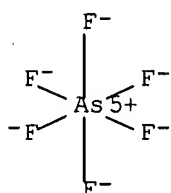
● Li⁺

RN 21324-40-3 HCAPLUS

CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)

● Li⁺

RN 29935-35-1 HCAPLUS
 CN Arsenate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)

● Li⁺

L135 ANSWER 24 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN
 AN 1998:685294 HCAPLUS Full-text
 DN 129:318659
 TI Polymer solid electrolytes, their manufacture, and
 lithium secondary batteries using the electrolytes
 IN Lee, Hakaru Fukushima; Shigeru, Akira Hyun; Lee, Susumu Kaori
 PA Samsung Electronics Co., Ltd., S. Korea
 SO Jpn. Kokai Tokkyo Koho, 8 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 FAN.CNT 1

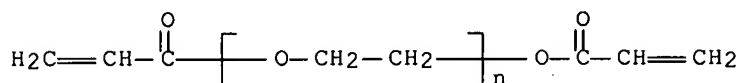
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10283839	A	19981023	JP 1997-260487	19970925 <--
	JP 2896361	B2	19990531		
	US 5965300	A	19991012	US 1997-921279	19970829 <--
PRAI	KR 1997-13286	A	19970410	<--	
	KR 1997-30816	A	19970703	<--	

AB The electrolytes consist of (A) mediums comprising (a) matrix polymers made of CH₂:CR₁CONR₂R₃ (I; R₁ = H, Me; R₂, R₃ = H, Me, Et, Pr, C₃H₆NR'₂, CH₂CH₂OH; R' = C₁-5 alkyl) and CH₂:CR₄CO(OCH₂CH₂)_nOCOCR₅:CH₂ (II; R₄, R₅ = H, Me; n = 3-30), (b) polymerization initiators, (c) inorg. salts, and (d) solvents and (B) vinylidene fluoride polymers and/or N,N-diethylacrylamide (III). The electrolytes are manufactured by adding electrolytic solns. comprising II, polymerization initiators, inorg. salts, and solvents to I, adding vinylidene fluoride polymers and/or III to the resulting mixts., and polymerizing the components in the mixts. The electrolytes show prevention of leaking of electrolytic solns. and improved ion conductivity and mech. strength.

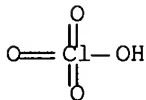
IC ICM H01B0001-12

- ICS C08L0027-16; C08L0033-26; H01M0010-40
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- Section cross-reference(s): 35, 38
- ST polymer solid electrolyte lithium secondary battery; soln leak prevention polymer solid electrolyte; polyoxyethylene diacrylate acrylic monomer polymer matrix; vinylidene fluoride diethylacrylamide polymer solid electrolyte
- IT Secondary batteries
Solid electrolytes
(solid electrolytes containing acrylic polymer matrix and vinylidene fluoride polymers and/or diethylacrylamide for lithium secondary batteries)
- IT Fluoropolymers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(solid electrolytes containing acrylic polymer matrix and vinylidene fluoride polymers and/or diethylacrylamide for lithium secondary batteries)
- IT Polymer blends
RL: TEM (Technical or engineered material use); USES (Uses)
(solid electrolytes containing acrylic polymer matrix and vinylidene fluoride polymers and/or diethylacrylamide for lithium secondary batteries)
- IT 26570-48-9
RL: MOA (Modifier or additive use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(crosslinking agents; in solid electrolytes containing acrylic polymer matrix and vinylidene fluoride polymers and/or diethylacrylamide for lithium secondary batteries)
- IT 7791-03-9, Lithium perchlorate 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 33454-82-9, Lithium trifluoromethanesulfonate 90076-65-6, Lithium bis(trifluoromethanesulfonyl)imide
RL: TEM (Technical or engineered material use); USES (Uses)
(electrolyte; solid electrolytes containing acrylic polymer matrix and vinylidene fluoride polymers and/or diethylacrylamide for lithium secondary batteries)
- IT 78-67-1, AIBN 100-86-7, 2-Hydroxy-2-methyl-1-phenylpropane 574-09-4, Benzoin ethyl ether 947-19-3, 1-Hydroxycyclohexyl phenyl ketone 4419-11-8 15545-97-8 24650-42-8 69673-85-4, 1-(4-Isopropylphenyl)-2-hydroxy-2-methylpropan-1-one
RL: CAT (Catalyst use); USES (Uses)
(polymerization initiators; solid electrolytes containing acrylic polymer matrix and vinylidene fluoride polymers and/or diethylacrylamide for lithium secondary batteries)
- IT 214960-05-1P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(solid electrolytes containing acrylic polymer matrix and vinylidene fluoride polymers and/or diethylacrylamide for lithium secondary batteries)
- IT 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer 24937-79-9, Poly(vinylidene fluoride) 214960-07-3
RL: MOA (Modifier or additive use); USES (Uses)
(solid electrolytes containing acrylic polymer matrix and vinylidene fluoride polymers and/or

- diethylacrylamide for lithium secondary batteries)
- IT 67-68-5, DMSO, uses 68-12-2, DMF, uses 96-48-0
 , γ -Butyrolactone 96-49-1, Ethylene carbonate 105-58-8,
 Diethyl carbonate 108-32-7 109-99-9, THF, uses
 110-71-4 127-19-5, N,N-Dimethylacetamide 616-38-6, Dimethyl
 carbonate 617-84-5, N,N-Diethylformamide 646-06-0,
 1,3-Dioxolane 685-91-6, N,N-Diethylacetamide 24991-55-7, Polyethylene
 glycol dimethyl ether
 RL: NUU (Other use, unclassified); USES (Uses)
 (solvent; solid electrolytes containing acrylic
 polymer matrix and vinylidene fluoride polymers
 and/or diethylacrylamide for lithium secondary
 batteries)
- IT 26570-48-9
 RL: MOA (Modifier or additive use); RCT (Reactant); RACT (Reactant or
 reagent); USES (Uses)
 (crosslinking agents; in solid electrolytes containing
 acrylic polymer matrix and vinylidene fluoride
 polymers and/or diethylacrylamide for lithium
 secondary batteries)
- RN 26570-48-9 HCAPLUS
- CN Poly(oxy-1,2-ethanediyl), α -(1-oxo-2-propen-1-yl)- ω -[(1-oxo-2-
 propen-1-yl)oxy]- (CA INDEX NAME)

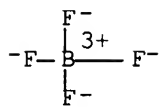


- IT 7791-03-9, Lithium perchlorate 14283-07-9, Lithium
 tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate
 33454-82-9, Lithium trifluoromethanesulfonate 90076-65-6
 , Lithium bis(trifluoromethanesulfonyl)imide
 RL: TEM (Technical or engineered material use); USES (Uses)
 (electrolyte; solid electrolytes containing
 acrylic polymer matrix and vinylidene fluoride
 polymers and/or diethylacrylamide for lithium
 secondary batteries)
- RN 7791-03-9 HCAPLUS
- CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)



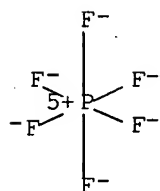
● Li

- RN 14283-07-9 HCAPLUS
- CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



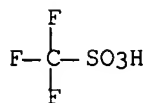
RN 21324-40-3 HCAPLUS

CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



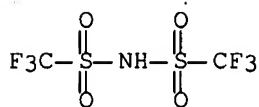
RN 33454-82-9 HCAPLUS

CN Methanesulfonic acid, 1,1,1-trifluoro-, lithium salt (1:1) (CA INDEX NAME)



RN 90076-65-6 HCAPLUS

CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



IT 78-67-1, AIBN

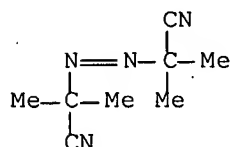
RL: CAT (Catalyst use); USES (Uses)

(polymerization initiators; solid electrolytes containing acrylic polymer matrix and vinylidene fluoride)

polymers and/or diethylacrylamide for lithium
secondary batteries)

RN 78-67-1 HCAPLUS

CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)



IT 214960-05-1P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(solid electrolytes containing acrylic polymer
matrix and vinylidene fluoride polymers and/or
diethylacrylamide for lithium secondary batteries)

RN 214960-05-1 HCAPLUS

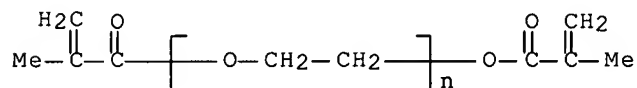
CN 2-Propenamide, N,N-diethyl-, polymer with N-(1-methylethyl)-2-propenamide
and α -(2-methyl-1-oxo-2-propenyl)- ω -[(2-methyl-1-oxo-2-
propenyl)oxy]poly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

CM 1

CRN 25852-47-5

CMF (C2 H4 O)_n C8 H10 O3

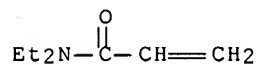
CCI PMS



CM 2

CRN 2675-94-7

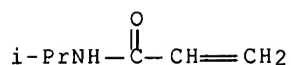
CMF C7 H13 N O



CM 3

CRN 2210-25-5

CMF C6 H11 N O



IT 214960-07-3

RL: MOA (Modifier or additive use); USES (Uses)
 (solid electrolytes containing acrylic polymer
 matrix and vinylidene fluoride polymers and/or
 diethylacrylamide for lithium secondary batteries)

RN 214960-07-3 HCAPLUS

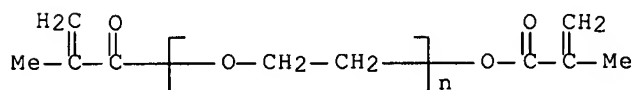
CN 2-Propenamide, N,N-diethyl-, polymer with α -(2-methyl-1-oxo-2-propenyl)- ω -[(2-methyl-1-oxo-2-propenyl)oxy]poly(oxy-1,2-ethanediyl)
 and 4-(1-oxo-2-propenyl)morpholine (9CI) (CA INDEX NAME)

CM 1

CRN 25852-47-5

CMF (C2 H4 O)_n C8 H10 O3

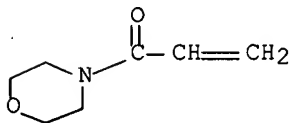
CCI PMS



CM 2

CRN 5117-12-4

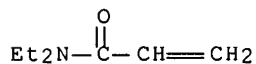
CMF C7 H11 N O2



CM 3

CRN 2675-94-7

CMF C7 H13 N O

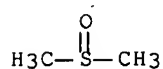


IT 67-68-5, DMSO, uses 68-12-2, DMF, uses 96-48-0
 , γ -Butyrolactone 96-49-1, Ethylene carbonate
 108-32-7 109-99-9, THF, uses 127-19-5,
 N,N-Dimethylacetamide 646-06-0, 1,3-Dioxolane
 RL: NUU (Other use, unclassified); USES (Uses)

(solvent; solid electrolytes containing acrylic polymer matrix and vinylidene fluoride polymers and/or diethylacrylamide for lithium secondary batteries)

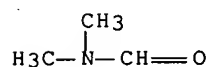
RN 67-68-5 HCAPLUS

CN Methane, 1,1'-sulfinylbis- (CA INDEX NAME)



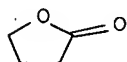
RN 68-12-2 HCAPLUS

CN Formamide, N,N-dimethyl- (CA INDEX NAME)



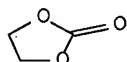
RN 96-48-0 HCAPLUS

CN 2(3H)-Furanone, dihydro- (CA INDEX NAME)



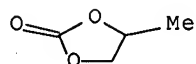
RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 108-32-7 HCAPLUS

CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



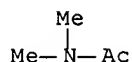
RN 109-99-9 HCAPLUS

CN Furan, tetrahydro- (CA INDEX NAME)



RN 127-19-5 HCAPLUS

CN Acetamide, N,N-dimethyl- (CA INDEX NAME)



RN 646-06-0 HCAPLUS

CN 1,3-Dioxolane (CA INDEX NAME)



L135 ANSWER 25 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1997:732370 HCAPLUS Full-text

DN 128:35554

TI Allyl carbonate copolymers, their manufacture, and polymeric solid electrolytes

IN Watanabe, Masayoshi; Yokoyama, Keiichi; Sasano, Takako

PA Mitsui Petrochemical Industries, Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 11 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	JP 09291123	A	19971111	JP 1996-107346	19960426 <--
	JP 3746324	B2	20060215		
	US 5977277	A	19991102	US 1997-845434	19970425 <--
PRAI	JP 1995-215058	A	19950823	<--	
	JP 1995-215059	A	19950823	<--	
	JP 1995-231864	A	19950908	<--	
	JP 1995-231865	A	19950908	<--	
	JP 1995-290192	A	19951108	<--	
	JP 1995-290193	A	19951108	<--	
	JP 1996-107346	A	19960426	<--	

AB Tilte copolymer contain units derived from $\text{CH}_2\text{:CR}_1\text{CH}_2\text{OCOO}(\text{CR}_2\text{CH}_2\text{O})_n\text{COOCH}_2\text{CR}_3\text{:CH}_2$ (I; $\text{R}_1\text{-3} = \text{H, Me}$; $n = 1\text{-}20$) and units derived from $\text{CH}_2\text{:CR}_4\text{OCOR}_5$ (II; $\text{R}_4 = \text{H, Me}$; $\text{R}_5 = \text{C}_1\text{-4 alkyl, CH}_2\text{CR}_6\text{:CH}_2$; $\text{R}_6 = \text{H, Me}$). The copolymers are manufactured by polymerizing I with II in the presence of diisopropyl peroxydicarbonate (III). Polymeric solid hydrolytes, useful for primary batteries, secondary batteries, condensers, etc., comprise the copolymers (as matrixes) and alkali metal salts and optionally further contain nonaq. solvents to form gels. Thus, 1.0 g diethylene glycol diallyl carbonate was polymerized with 11.0 g allyl Me carbonate in the presence of 1.4 g III and 0.6 g $\text{LiN}(\text{CF}_3\text{SO}_2)_2$ and then cure to show ion conductivity $2.3 + 10^{-7}$ S/cm at 100° and $8.4 + 10^{-8}$ S/cm at 80° .

IC ICM C08F0218-00

ICS C08F0290-06; C08K0003-24; C08L0031-00

CC 37-6 (Plastics Manufacture and Processing)

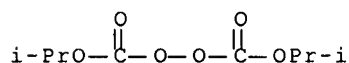
Section cross-reference(s): 35

ST allyl carbonate copolymer polymeric solid

electrolyte; alkali metal allyl carbonate copolymer

electrolyte; diisopropyl peroxydicarbonate polymn catalyst allyl

- carbonate
- IT Polymerization catalysts
Solid electrolytes
(polymeric solid electrolytes containing allyl carbonate copolymers, alkali metal salts, and optionally nonaq. solvents)
- IT Polycarbonates, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polymeric solid electrolytes containing allyl carbonate copolymers, alkali metal salts, and optionally nonaq. solvents)
- IT Alkali metal salts
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polymeric solid electrolytes containing allyl carbonate copolymers, alkali metal salts, and optionally nonaq. solvents)
- IT 105-64-6, Diisopropyl peroxydicarbonate
RL: CAT (Catalyst use); USES (Uses)
(polymeric solid electrolytes containing allyl carbonate copolymers, alkali metal salts, and optionally nonaq. solvents)
- IT 188779-82-0P
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polymeric solid electrolytes containing allyl carbonate copolymers, alkali metal salts, and optionally nonaq. solvents)
- IT 90076-65-6, Lithium bis(trifluoromethylsulfonyl)imide
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polymeric solid electrolytes containing allyl carbonate copolymers, alkali metal salts, and optionally nonaq. solvents)
- IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(solvents; polymeric solid electrolytes containing allyl carbonate copolymers, alkali metal salts, and optionally nonaq. solvents)
- IT 105-64-6, Diisopropyl peroxydicarbonate
RL: CAT (Catalyst use); USES (Uses)
(polymeric solid electrolytes containing allyl carbonate copolymers, alkali metal salts, and optionally nonaq. solvents)
- RN 105-64-6 HCAPLUS
- CN Peroxydicarbonic acid, C,C'-bis(1-methylethyl) ester (CA INDEX NAME)

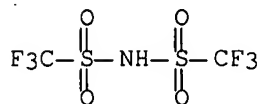


- IT 90076-65-6, Lithium bis(trifluoromethylsulfonyl)imide
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polymeric solid electrolytes containing allyl

carbonate copolymers, alkali metal salts, and optionally
nonaq. solvents)

RN 90076-65-6 HCAPLUS

CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-,
lithium salt (1:1) (CA INDEX NAME)



● Li

IT 96-49-1, Ethylene carbonate 108-32-7, Propylene
carbonate

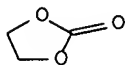
RL: PRP (Properties); TEM (Technical or engineered material use); USES
(Uses)

(solvents; polymeric solid electrolytes

containing allyl carbonate copolymers, alkali metal salts, and
optionally nonaq. solvents)

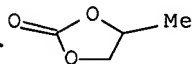
RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 108-32-7 HCAPLUS

CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



L135 ANSWER 26 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1993:31282 HCAPLUS Full-text

DN 118:31282

TI Solid polymer electrolytes

IN Braun, Ruediger; Meisel, Thomas; Kraenzler, Thomas; Scherber, Werner

PA Dornier GmbH, Germany

SO Eur. Pat. Appl., 5 pp.

CODEN: EPXXDW

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	EP 499115	A1	19920819	EP 1992-101764	19920204 <--
	EP 499115	B1	19960501		
	R: DE, FR, GB, IT				
	JP 05098114	A	19930420	JP 1992-22681	19920207 <--

PRAI DE 1991-4104008 A 19910209 <--

AB Polymeric solid electrolytes having heightened cohesive and adhesive properties and well suited to use in electrochromic systems comprise crosslinked or uncrosslinked homo- or copolymers formed from acrylate or methacrylate monomers having ethylene oxide side chains described by the general formula $(CH_2CH_2-O)_n$ ($n = 2-15$) and incorporating ≤ 10 weight% of an organofunctional silane, and with ≤ 40 weight% of the electrolyte comprising ≥ 1 (dissolved in the polymer) conductive salt having a cation selected from Li, Na, K, or Ag. Use in primary and secondary batteries is also indicated.

IC ICM H01B0001-20

ICS H01B0001-12; H01M0006-18

CC 76-2 (Electric Phenomena)

Section cross-reference(s): 38, 52, 73, 74

ST electrochromic system polymer electrolyte;

battery polymer electrolyte

IT Battery electrolytes

(polymeric)

IT Electrolytes

(polymeric, for electrochromic systems)

IT Optical imaging devices

(electrochromic, solid polymer electrolytes for)

IT 95-14-7, 1H-Benzotriazole 128-37-0, 2,6-Di-tert-butyl-p-cresol, uses

1137-42-4, p-Hydroxybenzophenone 2044-56-6 2923-28-6

2926-27-4 2926-30-9 7601-89-0, Sodium perchlorate

7778-74-7, Potassium perchlorate 7791-03-9, Lithium perchlorate

13755-29-8 14075-53-7 14283-07-9 33454-82-9

RL: USES (Uses)

(electrolytes based on polymers containing, for electrochromic systems)

IT 25249-16-5 25852-47-5 30398-79-9

RL: USES (Uses)

(electrolytes based on, for electrochromic systems)

IT 94-36-0, Benzoyl peroxide, uses 5457-66-9 16474-43-4

145068-19-5, 2,2'-Azobis-(2-methyl-propionic acid nitrile)

RL: USES (Uses)

(in polymer electrolyte preparation)

IT 2044-56-6 2923-28-6 2926-27-4

2926-30-9 7791-03-9, Lithium perchlorate

14283-07-9 33454-82-9

RL: USES (Uses)

(electrolytes based on polymers containing, for electrochromic systems)

RN 2044-56-6 HCAPLUS

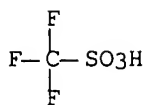
CN Sulfuric acid, monododecyl ester, lithium salt (1:1) (CA INDEX NAME)

HO₃SO—(CH₂)₁₁—Me

● Li

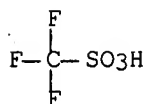
RN 2923-28-6 HCAPLUS

CN Methanesulfonic acid, 1,1,1-trifluoro-, silver(1+) salt (1:1) (CA INDEX NAME)



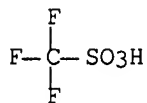
● Ag(I)

RN 2926-27-4 HCAPLUS
CN Methanesulfonic acid, 1,1,1-trifluoro-, potassium salt (1:1) (CA INDEX NAME)



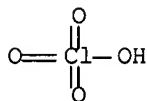
● K

RN 2926-30-9 HCAPLUS
CN Methanesulfonic acid, 1,1,1-trifluoro-, sodium salt (1:1) (CA INDEX NAME)



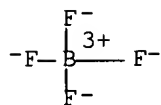
● Na

RN 7791-03-9 HCAPLUS
CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)



● Li

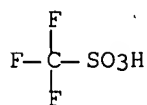
RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



● Li⁺

RN 33454-82-9 HCAPLUS

CN Methanesulfonic acid, 1,1,1-trifluoro-, lithium salt (1:1) (CA INDEX NAME)



● Li

IT 25249-16-5 25852-47-5 30398-79-9

RL: USES (Uses)

(electrolytes based on, for electrochromic systems)

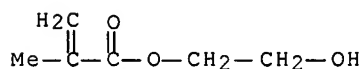
RN 25249-16-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, homopolymer (CA INDEX NAME)

CM 1

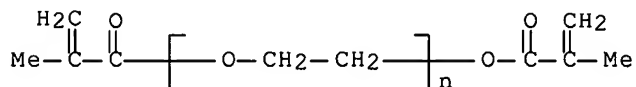
CRN 868-77-9

CMF C6 H10 O3



RN 25852-47-5 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), α-(2-methyl-1-oxo-2-propen-1-yl)-ω-[(2-methyl-1-oxo-2-propen-1-yl)oxy]- (CA INDEX NAME)

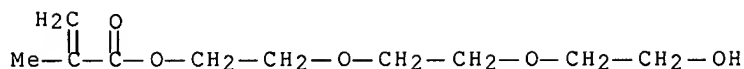


RN 30398-79-9 HCAPLUS

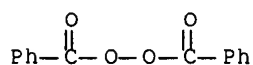
CN 2-Propenoic acid, 2-methyl-, 2-[2-(2-hydroxyethoxy)ethoxy]ethyl ester, homopolymer (CA INDEX NAME)

CM 1

CRN 2351-42-0
CMF C10 H18 O5



IT 94-36-0, Benzoyl peroxide, uses
RL: USES (Uses)
(in polymer electrolyte preparation)
RN 94-36-0 HCAPLUS
CN Peroxide, dibenzoyl (CA INDEX NAME)



L135 ANSWER 27 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1986:415981 HCAPLUS Full-text
DN 105:15981
TI Poly[lithium methacrylate-co-oligo(oxyethylene) methacrylate] as a solid electrolyte with high ionic conductivity
AU Kobayashi, Norihisa; Uchiyama, Masahiro; Tsuchida, Eishun
CS Dep. Polym. Chem., Waseda Univ., Tokyo, 160, Japan
SO Solid State Ionics (1985), 17(4), 307-11
CODEN: SSIOD3; ISSN: 0167-2738
DT Journal
LA English
AB Poly[lithium methacrylate-co-oligo(oxyethylene) methacrylate] film was prepared as a polymeric solid electrolyte which showed a Li ionic conductivity of 2×10^{-7} (S/cm). This film contains no organic plasticizer nor low-mol. weight Li salts and was shown to be a single-ion conductor in the solid state. Li⁺ ionic conductivity was deeply influenced by the glass transition temperature and Li methacrylate content of the film. A rechargeable battery composed of metallic Li/this film/graphite showed better characteristics than any previously reported systems using polymeric solid electrolytes.
CC 76-2 (Electric Phenomena)
Section cross-reference(s): 36
ST lithium methacrylate polymer electrolyte;
oligooxyethylenemethacrylate polymer cond;
oxyethylenemethacrylate polymer cond
IT Batteries, primary
(from poly[lithium methacrylate-oligo(oxyethylene) methacrylate])
IT Polymerization
(of lithium methacrylate with oligo(oxyethylene) methacrylate for ionic conductors)
IT Electric conductors
(ionic, from poly[lithium methacrylate-oligo(oxyethylenemethacrylate)])
IT Electric conductivity and conduction
(ionic, in poly[lithium methacrylate-co-oligo(oxyethylene) methacrylate] films)
IT Electric conductivity and conduction

(ionic, of poly[lithium methacrylate-oligo(oxyethylene)
methacrylate])

IT 78-67-1 7791-03-9 13234-23-6
25179-23-1

RL: USES (Uses)

(in ionic conductor polymer preparation)

IT 103285-01-4P

RL: PREP (Preparation)

(preparation of, as ionic conductor)

IT 102814-54-0

RL: TEM (Technical or engineered material use); USES (Uses)

(solid electrolyte, with high ionic conductivity)

IT 17341-24-1, properties

RL: PRP (Properties)

(transport number of, in lithium methacrylate-oligo(oxyethylene)
methacrylate copolymer)

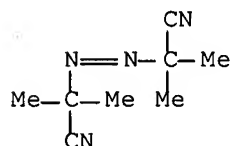
IT 78-67-1 7791-03-9 13234-23-6
25179-23-1

RL: USES (Uses)

(in ionic conductor polymer preparation)

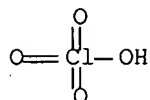
RN 78-67-1 HCAPLUS

CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)



RN 7791-03-9 HCAPLUS

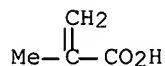
CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)



● Li

RN 13234-23-6 HCAPLUS

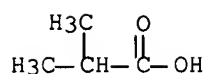
CN 2-Propenoic acid, 2-methyl-, lithium salt (1:1) (CA INDEX NAME)



● Li

RN 25179-23-1 HCAPLUS

CN Propanoic acid, 2-methyl-, lithium salt (9CI) (CA INDEX NAME)



● Li

IT 103285-01-4P

RL: PREP (Preparation)
(preparation of, as ionic conductor)

RN 103285-01-4 HCAPLUS

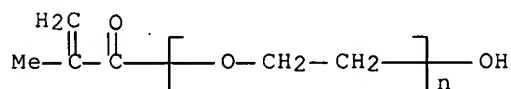
CN 2-Propenoic acid, 2-methyl-, lithium salt, polymer with
α-(2-methyl-1-oxo-2-propenyl)-ω-hydroxypoly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

CM 1

CRN 25736-86-1

CMF (C2 H4 O)_n C4 H6 O2

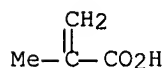
CCI PMS



CM 2

CRN 13234-23-6

CMF C4 H6 O2 . Li



● Li

IT 102814-54-0

RL: TEM (Technical or engineered material use); USES (Uses)
(solid electrolyte, with high ionic conductivity)

RN 102814-54-0 HCAPLUS

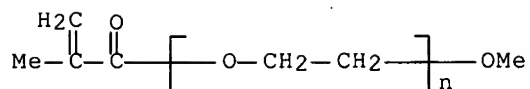
CN 2-Propenoic acid, 2-methyl-, lithium salt, polymer with
α-(2-methyl-1-oxo-2-propenyl)-ω-methoxypoly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

CM 1

CRN 26915-72-0

CMF (C2 H4 O)_n C5 H8 O2

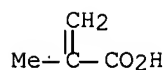
CCI PMS



CM 2

CRN 13234-23-6

CMF C4 H6 O2 . Li



● Li

IT 17341-24-1, properties

RL: PRP (Properties)

(transport number of, in lithium methacrylate-oligo(oxyethylene)
methacrylate copolymer)

RN 17341-24-1 HCAPLUS

CN Lithium, ion (Li+) (CA INDEX NAME)

Li⁺

=>